NORMATIVE AND EMOTIONAL RESPONSES IN A PEER CONFLICT PARADIGM: A DEVELOPMENTAL STUDY ON 3- AND 5-YEAR-OLD TURKISH CHILDREN

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ÖZGÜN KÖKSAL

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Submitted by **ÖZGÜN KÖKSAL** in partial fulfillment of the requirements for the degree of **Master of Science in Cognitive Science, Middle East Technical University** by,

Prof. Dr. Nazife Baykal _____
Director, **Informatics Institute**

Prof. Dr. H. Cem Bozşahin _____
Head of Department, **Cognitive Science**

Assist. Prof. Dr. Annette Hohenberger _____
Supervisor, **Cognitive Science, Middle East Technical University**

Examining Committee Members:

Prof. Dr. H. Cem Bozşahin _____
Cognitive Science, Middle East Technical University

Assist. Prof. Dr. Annette Hohenberger _____
Cognitive Science, Middle East Technical University

Assoc. Prof. Dr. Sibel Kazak Berument _____
Psychology, Middle East Technical University

Dr. Ceyhan Temürcü _____
Cognitive Science, Middle East Technical University

Prof. Dr. Deniz Zeyrek Bozşahin _____
Cognitive Science, Middle East Technical University

Date:11.09.2012

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last Name : Özgün KÖKSAL

Signature : _____

ABSTRACT

NORMATIVE AND EMOTIONAL RESPONSES IN A PEER CONFLICT PARADIGM: A DEVELOPMENTAL STUDY ON 3- AND 5-YEAR-OLD TURKISH CHILDREN

KÖKSAL, Özgün

M.S., Department of Cognitive Science

Supervisor: Assist. Prof. Dr. Annette Hohenberger

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The purpose of the study is to investigate the development of normative understanding and its relation to emotional states. Two samples of late 3- and 5-year-old Turkish pre-school children were studied. We adopted a peer conflict paradigm in which we taught two children conflicting rules for playing a game and asked them to play the game together, later (incompatible condition). Since children had learned different rules we expected them to protest when their partners played the game with a different rule. Results revealed that both 3- and 5-year-old children were competent at understanding the normative force of the rules. Yet, they did this in a context-sensitive manner. While they protested their partner in the incompatible condition, they did not protest when their partner performed the same action in a different game context where both rules had been taught to children as two alternative ways of playing (compatible condition). Moreover, we investigated children's emotional states – especially annoyance and anger – throughout their interactions. We found a different pattern between 3- and 5-year-olds: 3-year-olds were more annoyed and angry in the incompatible condition than compatible condition. On the other hand, 5-year-olds' emotional

state of being annoyed/angry was not found to be different in the compatible and incompatible condition. Summing up the evidence from normative and emotional responses, even though 5-year-olds protested significantly more in the incompatible than compatible condition, they were not more 'annoyed and angry'. Furthermore, to investigate the possible related mechanisms of normative understanding, we conducted theory of mind and executive functioning tests and collected temperamental and emotion regulation characteristics by questionnaires completed by mothers. Yet, none of these variables were found to be related with normative responses of children when age was factored out in a linear regression model.

Keywords: Normativity, Emotion, Protest, Development, Peer Conflict

ÖZ

AKRAN İLİŞKİLERİNDE NORMSAL VE DUYGUSAL TEPKİLER: 3 VE 5 YAŞ TÜRK ÇOCUKLARI ÜZERİNDE GELİŞİMSEL BİR ÇALIŞMA

KÖKSAL, Özgün

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Bu çalışmanın amacı, normsal anlayışın ve duyguların gelişimsel ilişkisini araştırmaktır. Bu sebeple, çocukların akranlarıyla belli bir oyunun kuralları üzerine tartışmalarını hedefleyen bir yöntem kullanılmıştır. Çocuklara belli bir oyun farklı kurallarla öğretilmiş; sonrasında iki akrandan oyunu beraber oynamaları istenmiştir (Deney grubu). Çocuklar aynı isimli oyunun kuralı olarak farklı kurallar öğrendikleri için, çocukların akranları oyunun farklı şekilde oynadığında itiraz etmeleri beklenmiştir. Araştırmanın sonuçları hem 3, hem de 5 yaş çocuklarında bu hipotezi desteklemiştir. Ayrıca, çocuklar farklı bağlamların, kuralların geçerliliğini etkileyeceğinin de farkında farkındadırlar. Kontrol grubundaki çocuklara aynı oyun iki farklı şekilde oynanabilecek şekilde öğretilmiş ve çocukların bu durumda birbirlerine itiraz etmedikleri gözlemlenmiştir. Bunun yanı sıra, çocukların birbirleri ile etkileşimleri sırasındaki duygusal durumları –özellikle rahatsızlık ve kızgınlık durumları- incelenmiştir. 3 yaşındakiler deney grubunda, kontrol grubuna kıyasla daha çok 'rahatsızlık ve kızgınlık' göstermişlerdir. Ancak, 5 yaş çocuklarının rahatsızlık ve kızgınlık duygu durumları deney grubu ve kontrol grubu arasında farklılık göstermemiştir. Normsal ve duygusal gözlemler beraber değerlendirildiğinde 5 yaş çocuklarının deney grubunda kontrol grubuna kıyasla daha çok itiraz etmelerine rağmen, deney grubunda daha fazla 'kızgınlık/

rahatsızlık' göstermedikleri gözlenmiştir. Bunlara ek olarak, çocukların normsal anlayışlarını yordayacağı düşünülerek, çocuklara çeşitli akıl teorisi, yönetici işlev testleri uygulanmış, ayrıca çocukların anneleri tarafından doldurulmak üzere duygu düzenleme ve mizaç özelliklerini ölçen testler dağıtılmıştır. Ancak, bu etkenlerin hiçbiri çocukların normsal tepkilerini yordamamıştır.

Anahtar kelimeler: Normsallık, Duygu, İtiraz, Gelişim, Tartışma

To My Mother and Father…

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LIST OF ABBREVIATIONS

C-Protest	Competence-for-Protesting
F-Protest	Frequency of Protest
C-Conflict	Competence-for-Conflicting
F-Conflict	Frequenct of Conflict
EF	Executive Function
DCCS	Dimensional Change Card Sort
ToM	Theory of Mind
DD	Diverse Desire
EFB	Explicit False Belief
RAE	Real-Apparent Emotion
ES	Emotional Stroop
E1	Experimenter 1
E2	Experimenter 2
ERC	Emotion Regulation Checklist
CBQ	Children Behavior Questionnaire

CHAPTER 1

INTRODUCTION

Humans are considered as unique species having certain kinds of higher-level mental characteristics that differentiate them from their nearest primate relatives. When we ask ourselves, why we are so different from other species, the naïve answer usually goes like this: we are more intelligent than others and the manifestations of our intelligence are everywhere: We learn language(s), we invent and use technological tools, we establish governments operating on complex laws and we have tremendous knowledge about the world around us. Now, let us think of a baby who grew up without any human contact but in some way, was able to survive. Would she show any signs of intelligence that are specifically characterized as "human intelligence"? The answer is no, she would not, at least not all characteristics, in particular, not language, since none of these abilities are a manifestation of merely individual human intelligence. We cannot learn languages ourselves; we need others around us to provide the appropriate language input. Yet the creation process of language is also dependent on evolution through countless generations. Similarly, we have complex technological tools today, but none of them was invented by an individual or one group of people. All of these are not consequences of merely individual brainpower but results of accumulation and development of knowledge through social interaction and joint action through countless generations. As the Vygotskian idea suggests human cognition is so unique because it enables learning through others and collaborating with others to a remarkable extent (Tomasello & Carpenter, 2007). Tomasello (2010) suggests that humans have specialized social-cognitive skills that differentiate themselves from other animals. [Recently, also Spelke holds that idea, see Kinzler & Spelke, 2007]

These skills enable them to act cooperatively and accumulate knowledge from one generation to the following. They form complex cultural groups, which has certain norms and rules regulating social living. Additionally, members of the group are expected to

conform to these norms and rules and transgressions are punished with either social disapproval or worse, with social exclusion. Moreover, humans are somehow motivated to display these skills, which in turn, strengthen the bonds of the groups they construct.

To be a part of their cultural group, human children had to specialize in these kinds of social-cognitive skills. By the virtue of these skills they "(i) learn their native language in social interactions with others, (ii) acquire necessary subsistence skills by participating with experts in established cultural practices, and (iii) (in many cultures) acquire skills with written language and mathematical symbols through formal schooling" (Herrmann, Call, Hernàndez-Lloreda, Hare, & Tomasello, 2007, pg.1360). All of these steps, in turn, enable human children to increase their cognitive capacities and knowledge and help them to be competent members of their cultural group.

All human cultural groups around the world have certain shared mutual expectations about how members of that group should behave. These expectations can be in the form of conventions (e.g. wearing in black at a funeral) or moral rules (e.g. stealing is wrong) or institutional norms (e.g. certain bits of paper count as money). In addition to behaving according to norms, members expect and force others to conform to these norms. Children of every culture acquire the normative structure of their group and they do this at a very early age. The aim of the present thesis is to investigate young children's developing understanding of normativity.

Certain cognitive abilities are considered as the underlying reason of human's creation of such a complex social reality. 6-month-old infants begin to understand the goals of actions (Woodward, 1999) and, at around their first year of age, they can understand the intentions behind behaviors (Gergely, Bekkering, & Kiraly, 2002). This means that humans perceive others as intentional agents from a very early age. Understanding intentions is followed by the ability –and motivation – to share intentions with others. Infants share intentions with others in activities, a prerequisite of which is that they share a goal and mutual mental representations to achieve that goal together (Tomasello & Carpenter, 2007). This process is very important since it enables infants to be part of cooperative, collaborative activities (Tomasello, 2010). Moreover, at some point in their development, children begin to understand that other people might hold thoughts, beliefs, and ideas that are different from reality (Wellman & Liu, 2004). This is very important because before the development of such theory of mind (ToM) abilities, children cannot "think" that other people think, believe, perceive, and desire in a similar way as they do themselves. They cannot understand that others might hold different mental representations than theirs. If they like eating biscuits

more than carrots, all people like biscuits more than carrots. Or, if they know that a pair of gloves is in a wardrobe, then everybody knows that they are in the wardrobe. Therefore, the development of ToM abilities are crucial for understanding the nature and dynamics of human interaction better. When children understand that others might know, perceive, think, etc. different things, they can correctly predict what others will do and behave accordingly (Perner & Lang, 1999) .

Shared intentionality and ToM are critical underlying abilities, yet whether they are sufficient for humans' extraordinary complex social life is questionable. Comparative studies suggest that chimpanzees can also understand that other chimpanzees hold different perceptual states or they can differentiate accidental actions from purposeful ones meaning that they can understand the intentions behind the behaviors (Tomasello, Call, & Hare, 2003). Tomasello and Hare (2005; Hare, 2007) suggested that what makes us so unique might not be due to our abilities of understanding others as mental agents, since our nearest relatives can also do this to some extent. Studies that were conducted on domesticated foxes (Belyaev, 1979) inspired Tomasello and Hare to suggest that some other processes might be the underlying reason of our success. Studies showed that a group of foxes who were selectively bred throughout successive generations in terms of their approach to humans perform similar to domesticated dogs in understanding human social cues (such as pointing). Foxes were not selected on understanding human social cues but selected with respect to their low levels of fear toward humans. Yet, somewhat surprisingly, the cognitive ability of understanding human social cues emerged at the end of this domestication process. This long-term study directed researchers to question characteristics of chimpanzee collaboration and cooperation. They found out that chimpanzees cooperate only when they "think" that they will be safe throughout this interaction (Tomasello, Melis, & Hare, 2006). Behaving according to their confidence level on the criteria of safety is very rational since chimpanzees are competitive and aggressive animals especially towards strangers and interactions with outgroup chimpanzees can even be lethal.

Studies on domesticated dogs, foxes and chimpanzees inspired Hare and Tomasello (2005) to hypothesize that humans' flexibility in social relationships might first appear full-blown after emotional reactivity towards others decreases. This "emotional reactivity" hypothesis seems logical since "… a more sophisticated theory of others' behavior or mental states would be of little use when cooperating if individuals are rarely able to share the rewards of joint effort." (Hare & Tomasello, 2005, pg.5).

Emotional reactivity seems like a plausible parameter, yet more research is needed to support whether our ancestors' flexibility in complex ways of social interaction, appeared only after their fear and aggressiveness towards others diminished. However, it is unfortunate that it is impossible to find "fossils" of social interactions. We can only hypothesize this scenario by relying on the knowledge we obtain from comparative studies, development of human children and characteristics of recent human social interactions. At this moment, our aim is neither to support the emotional reactivity hypothesis, nor suggest a causal link between evolution of emotional reactivity and social relationships. Yet, on a broader level, the present study is interested in how emotions and the complex social reality that we construct are related with each other. In particular, it questions the intricate relationship of normative behavior and emotional processes. For this purpose, we adopt a developmental perspective, relying on the assumption that the cognitive and emotional development of children might yield important insights into not only human ontogeny but possibly also human phylogeny.

There is a limited amount of literature on normative understanding of children and, to the best of our knowledge, no experimental study on the developmental relationship of normative understanding and emotional processes. Therefore, the present experiment explores this field as (one of) the first. This being a seminal study, we aimed to ask general questions on the relation of various emotional phenomena instead of focusing on specific topics. Concepts such as emotional reactivity, emotion regulation, temperament, emotional knowledge are all included to elucidate the relationship of normativity with critical components of emotional processes. This is also a limitation since the current study does not carry out comprehensive examinations of each concept. Yet, this is deliberately preferred since we want to obtain a general picture, at the start, and see which points are worth a deeper analysis in future research rather than focusing only on one concept and ignoring others.

Following Engemann (2010), a peer-interaction paradigm was used. Different from general studies on normativity (Rakoczy, Brosche, Warneken, & Tomasello, 2009; Rakoczy, Warneken, & Tomasello, 2008), this study investigates children's normative understanding and the force of norms in a peer play setting. Since peer-play is a "horizontal" relationship in which both of the parties have similar knowledge and equal social power, studying normativity in peer-relations might yield different results than studies relying on adult-child interactions. In the study, two children were told different rules how to play a game (incompatible condition). This procedure created conflicts between children when they were asked to play the game together. On the other hand, in the control condition, children were

taught two games and asked to play together without specifying any of the games (compatible condition). The sample of Engemann consisted of late 3- and 5-year-old children. This procedure both enables to observe a developmental change with respect to children's protests when the game was not played "correctly" and context relative understanding of 3- and 5-year olds in terms of rules. The results of this study showed that both 3- and 5-year-old children "defend" their rules by protesting against others' "incorrect" way of playing. However, while 5 year-olds did this in a context-sensitive manner (e.g. not protesting in the compatible condition but protesting in the incompatible condition), 3-year-olds were not context-relative in their responses. They protested similarly both in the compatible and incompatible condition. As Engemann was concerned with the existence of the underlying ability to protest normatively, even one instance of protesting was considered as evidence that the child "has the ability to protest" and the number of protests was not taken into account. On the other hand, the present experiment is also interested in children's persistence in protesting because we think that persistence on the rule is also critical in the sense of distinguishing degrees of normative power of rules in children and how this persistence changes throughout development.

As mentioned above, emotional processes comprise many different concepts. In this study, firstly, children's emotional reactions were observed throughout the test phase of the experimental game (the session where two children were asked to play together.). Secondly, to gain insight into emotion regulation abilities and temperamental characteristics, questionnaires about emotion regulation and temperament were given out to and completed by the mothers of the children. Additionally, theory of mind and executive functioning tests were conducted to assess the possible relationship of these cognitive capabilities with both normative and emotional responses of children.

Outline of the thesis

Chapter 2 comprises a literature review which, in general, consists of elaborations on two broad concepts: Normativity and emotion. Firstly, cultural and psychological foundations of norms will be presented by referring to both philosophical and experimental work. Secondly, emotional processes will be defined. Brief characterizations of the concepts of emotion, emotion regulation, temperament, and emotion socialization will be given. Lastly, issues related to the methodology of the experiment, namely executive functioning and peer conflict will be discussed. Chapter 3 will present details of the present experiment's method: information on participants, design, procedure, and materials used in the experiment will be explained. In Chapter 4, the results of the statistical analyses will be presented. In Chapter 5,

the findings of the present experiment will be evaluated in detail and compared with respect to the existing literature and limitations will be discussed. Lastly, Chapter 6 is a conclusion of the present experiment in which possible further experimental ideas will be mentioned, as well.

CHAPTER 2

LITERATURE REVIEW

2.1. Normativity

2.1.1. How to Conceptualize Norms

Norms are usually considered as concepts regulating life expressed by sentences in the form of what *ought to* or *should be* done. There is a general distinction between *norms of being* and *norms of action* (Glüer & Wikforss, 2010). While norms of being evaluate whether certain states of affairs are good or valuable, norms of action set what kind of behaviors are correct or appropriate. The norms of actions ramify into various subparts. To illustrate, norms can be divided into two: instrumental (X ought to do Y to achieve Z) (von Wright, 1963) or non-instrumental norms. One, further, can divide non-instrumental norms into prescriptive and constitutive rules. Prescriptive rules can be conditional (X ought to do Y in context C.) or unconditional (X ought to do Y.) (Rawls, 1955, von Wright, 1963). Moreover, as their name suggests, constitutive rules constitutes the very existence of the activity they are regulating (X counts as Y in context C.) (Searle, 1995)[1].

Bicchieri (2006) focuses specifically on social norms suggesting social norms as the "grammar of social interaction" since norms specify the acceptable and unacceptable practices throughout different contexts. Similar to grammars, they emerge without planning or design. According to Bicchieri (2006), "…the very existence of a social norm depends on a sufficient number of people believing that it exists and pertains to a given type of situation, and expecting that enough other people are following it in those kinds of situations." (pg.2).

[1] Details of constitutive rules will be presented later.

She suggested that expectations of other people to conform and conditional preferences (e.g. motivation) to act accordingly are the two critical requirements for norms.

Social norms can sometimes be confused with conventions, laws or descriptive norms. Therefore, before going further, it is useful to differentiate between these concepts. Conventions and descriptive norms usually express how things are usually done. They intrinsically embrace expectations for conformity from others and conditional preferences to conform. Yet, Bicchieri (2006) suggested that these two concepts differ from social norms in terms of the criteria of "self-interest". Bicchieri suggested that coordination games can be good tools for modeling these two concepts. In those games, there are several possible end-states (equilibrium points) that individuals of a group can converge on. The aim is to coordinate with others to reach an equilibrium state and it does not matter at which equilibrium state people converge, since the aim is not the certain characteristics of the end state, instead the aim is to coordinate at some point. Therefore, even if one prefers to play in another way, one conforms in order to be able to coordinate to others. Bicchieri evaluates conventions and descriptive norms as solutions to coordination problems. The coordination problems can be solved by different possible equilibria. On the other hand, social norms are often going beyond this. What makes social norms different is people beliefs that a sufficient number of others expect them to conform to the social norms and might sanction non-conforming behavior[2]. Furthermore, social norms can be formal or informal. Formal ones are included in the concept of law. To illustrate, even though many governments have laws sanctioning bribe as a crime, bribe is widespread and tolerated. Yet, there are social norms totally contradicting with laws (e.g. blood feud).

As can be understood from its definition, the very critical characteristic of social norms is their force for conformity. There might be several reasons for individuals' conformity to norms. Desires to fulfill others' expectations or fear of being ostracized might force people to act in ways that they never wanted. On the other hand, people might attribute values to norms and rationalize their conformity. Besides all of these, people do not need explicit reasons to conform. Most of the time, conformity is automatic, not subjected to rational thinking.

2.1.2. Cultural functions of norms

[2] For details of conditions for social norms and conventions, and the relation between norms and behavior, see Bicchieri (2006).

Humans live in cultural groups each of which adopts a countless number of norms. Tomasello (2009) suggested that norms serve several important functions[3] for continuity of social collaboration and cooperation. Firstly, norms force humans to adhere to culturally shared knowledge and practices (Engemann, 2010), which strengthens the perception of group membership, which in turn increases cohesion of the group. Secondly, norms indirectly guarantee cultural transmission of group practices and cumulative knowledge by influencing members to act altruistically. Altruism is considered as the "…motivational foundation of (systematic) teaching, a form of helping that is highly characteristic of humans, and makes sure that acquired knowledge is transmitted to the next generations of individuals to come." (Engemann, 2010, pg.2)

Norms, after being constructed, regulate the institutional life, as well. In all domains of human culture, people have to collaborate in certain practices, which in turn, guarantee the continuity of social life. Norms ensure that members of the group act in certain ways or are punished if they do not.

This point of view seems plausible since humans' evolutionary success is partly due to their success of living together culturally. Norms seems like tools maintaining cooperation, collaboration, altruism, and teaching within cultural groups. However, the psychological mechanisms and motivations that provide continuity of norms is still an open question (Engemann, 2010).

2.1.3. Psychological foundations of norms

2.1.3.1 Shared Intentionality

To understand what shared intentionality is, one must firstly understand intentionality. The term has two different usages. One is the philosophical usage of the term, which corresponds to "aboutness of the mental". Mental phenomena such as thoughts, desires, goals, beliefs, perceptions, etc. are always intentional since they are directed at either a content or an object: they are always "about" something (Brentano, 1874, as cited in Potr, 2002). On the other hand, the term intentionality is also used in a narrow sense as "…plan of action that an organism chooses and commits itself to in pursuit of a goal." (Bratman, 1999 as cited in Tomasello, Carpenter, Call, Behne, & Moll, 2005, pg.2). Both of these definitions are related

[3] One should be cautious when arguing about functions of norms since norms are not the product of human planning or design. In the present paper, suggestions in the form of "Function of X is to Y" are used when we attribute a value to the existence and continuity of Y, and X's regular consequence is to support existence or continuity of Y. We do not make any further assumptions about the origins or the development of X.

with each other, since the broad philosophical definition comprises the latter narrower, one. Due to the conceptual requirements of different areas of study, they are differentiated.

For necessities of social interaction, understanding of intentionality is an important milestone for the development of humans. The definition of intentionality, as given above, helps us to differentiate two commonly confused concepts: goals *vs*. intentions. Following Tomasello et al. (2005), goals, in this thesis, will be considered as internal goals that are mental representations guiding an organism's behavior to achieve a desired result. On the other hand, as can be understood from the definition, an intention comprises a state of having a goal and, additionally, requires a mental representation of how to achieve that certain goal. 6-month-old infants start to perceive human action as goal-directed (Woodward, 1999), while by the age of 11 months they can appreciate intentions, as witnessed, e.g., in their ability to segment actions into their intentional parts since people might have first different sub-goals and intentions to achieve a desired end-result (Baldwin, Baird, Saylor, & Clark, 2001). 14-month-old infants can segment the parts of intentions (goals and actions to achieve that goal) and act sensitively to the necessities of these segments when they were asked to imitate the behavior of a model (Gergely et al., 2002). In other words, 6-month-old infants take a "teleological" stance, i.e., the can understand (the purpose of) goals whereas 12-month-old infants take an "intentional" stance, i.e., they can internally represent goal-action-effect sequences of themselves and others (Csibra & Gergely, 1998). Moreover, 14 – to 18 months old infants can differentiate between intentional and accidental acts (Tomasello, Akhtar, & Carpenter, 1998; Meltzoff, 1995).

As experimental studies suggest, from an early age, infants start to perceive others as intentional agents. This is a crucial step towards collective action, yet it is not sufficient (Tomasello et al., 2005). What is necessary is shared intentionality. Shared intentionality is defined as two or more interactants' mutually sharing a certain goal and a mental representation to achieve that goal. Complexity of the activity does not matter. For instance, to achieve a very simple activity, taking a walk together, interactants, first, have to set a goal together. In this scenario, both of them should have the goal to walk together and have the mental representation that the other person shares the same goal. Secondly, they have to have a shared mental representation that is continuously updated by constantly considering the other's actions to achieve their shared goal when they are walking together. If one of the people leave this interaction without saying anything, this would be "awkward" and the person who leaves breaks his promise to walk together, as a result, breaks the "we" they formerly committed themselves to (Tomasello, 2009).

It might be difficult to differentiate sharing intentions from mere coordination. An example by J. Searle (1990) might help to understand this difference. Think of a scenario where many people are sitting in a park and, then, it starts to rain. Everybody starts running (taking care of not to hit or block anyone) with the goal of finding a shelter. In this case, all of the people might have the same goal of having a shelter. However, they hold "I-intentions". They aimed to find a shelter for themselves and their intention is independent from the other people who also have the same intention. However, if these people were a part of an outdoor dance group displaying the very same action in the former example, people of the dance group would share the same intention of presenting a performance. Even though people display the same actions in the two examples, in the first example, all people hold separate I-intentions while in the second example, people hold We-intentions - "We are performing together."

Therefore, mere coordination can be differentiated from activities involving shared intentionality by the three propositions that were firstly proposed by Michael Bratman,

> "(1) the interactants are mutually responsive to one another,
>
> (2) there is a shared goal in the sense that each participant has the goal that we (in mutual knowledge) do X together, and
>
> (3) the participants coordinate their plans of action and intentions some way down the hierarchy – which requires that both participants understand both roles of the interaction (role reversal) and so can at least potentially help the other with his role if needed." (Bratman, 1992 as cited in Engemann, 2010, pg.4)

Warneken, Chen, & Tomasello (2006) compared the performance of 14- and 18-month-old infants with chimpanzees in either social games or problem-solving tasks in which subjects interact with a human adult partner. While infants engage in both social and problem-solving tasks, chimpanzees were not interested in social games. Furthermore, when the human adult partner left the play session at a point, all of the infants tried to reengage him with the tasks at least once even though the task did not necessitate complementary roles and the child could have continued the game alone. These results suggested that children did not attempt to reengage the partner just to continue playing; instead, they were motivated to play the game with a social partner who they considered as having committed themselves to this joint action. On the other hand, none of the chimpanzees displayed any such attempt as infants did.

In another similar experimental setting, 2- and 3-year-old children played games with an adult confederate (Grafenhain, Behne, Carpenter, & Tomasello, 2009). In the experimental condition, the confederate invited children to play the game together. Therefore, the confederate and the adult made a joint commitment to play the game together. On the other hand, in the control condition, they did not make any joint commitment but just played the game side by side. In both of the conditions, the experimenter left the game at some point. Similar to the study of Warneken et al., (2006), both 2- and 3-year-olds attempted to reengage the partner to continue playing the game. Yet, 3-year-ols' behavior were sensitive to the experimental manipulation. Their attempts to reengage the partner were significantly more numerous in the experimental condition in comparison to the control condition. However, 2-year-olds attempts did not differ between conditions. These results showed that 3-year-olds but not yet 2-year-olds are able to differentiate making joint commitments and act differently when they made a joint commitment than when they did not.

Other than infants' abilities for shared intentionality, in these two studies, shared intentionality indirectly yielded a normative force. At the beginning, by sharing a task together, human children and the adult confederate made a commitment to play together. When the confederate leaves the interaction, he breaks his commitment; breaks the "we-intention" without any reason. In this case, trying to reengage the confederate is an attempt to force the other to continue we-intentionality. One can observe the normative force of joint commitments more clearly when children themselves choose to leave the game, to which an adult confederate and they had jointly committed themselves, for a new game (Grafenhain et al., 2009). Both 3- and 4-year-old children acknowledged the partner (e.g. by looking to the partner or giving the object they had been playing with) when they are leaving the game meaning that they are aware of the binding of their earlier joint commitments. As they broke the "we-intention" themselves, they felt obliged to inform the partner about this "breaking" due to the normative force their joint commitments.

2.1.3.2. From Shared Intentions to Institutional Facts

"Mount Everest is the highest mountain of the world." or "Hydrogen atoms have one electron." are brute facts of the world that are independent of human mental states. Even if no human beings existed on this world Mount Everest would still be the highest mountain and hydrogen would still have one electron, etc. However, different from such brute facts, humans construct a social reality constituted by a countless number of social facts, which exist only because humans believe in their existence. One cannot explain money, governments, marriages or presidents without referring to human mental states. To illustrate,

as Searle (1995) puts forward, when we go to a restaurant, we choose something from the menu, then tell the waiter we want a drink. The waiter brings our drink. We drink it, pay the price and leave. However, this simple scenario is only possible due to the existence of social facts. If it were not, how would one explain restaurants, waiters, menus, or prices without referring to the mental?

It is suggested that humans' abilities of sharing intentions is the underlying capacity for humans' creating such complex institutional facts (Tomasello, 2005). To understand institutional facts, one has to understand the differentiation of regulative *vs*. constitutive rules and assignment of functions, first. While regulative rules regulate already existing activities, constitutive rules create the very existence of those activities. For instance, driving on the right side of the road is a regulative rule, since the existence of the activity of driving is independent from the rule. On the other hand, some rules bring forth the activity itself such as rules of chess: they constitute the game of chess and there is a game named chess only because there are certain rules for playing chess (Searle, 1995, pg.28).

In this respect, it would be also beneficial to discriminate between assignments of functions to gain further insight in the understanding of social facts. There are two types of functions for the interest of this issue. First, there are "causal usage functions" which we assign to objects due to their physical causal characteristics (e.g. the function of a knife is to cut, due to its sharpness, etc.). On the other hand, there are "status functions of objects", as in practices that cannot be explained by their physical characteristics. To illustrate, how can one explain the function of money in terms of its physical make up? Instead, the function of money is a status in which people believe; this is how it functions as a medium of exchange. According to Searle, functions of social facts rely on constitutive rules (as mentioned earlier). They can be defined in the formula of "X counts as Y in the context of C". In this formula, the term Y is the status of the term X, and X has this status only because people believe that it has it. In the case of "Certain bits of paper (X) counts as money (Y) …", bits of paper gain a new status by being perceived and acted upon as money by people. Furthermore, the locution "counts as" corresponds to a collective intentionality meaning that there must be human agreement on the new status of X being Y. Searle suggested that the whole institutional reality relies on this seemingly simple constitutive rule and one can explain even very complex cultural entities and practices by using the formula iteratively. Yet, beholders of status functions need not be consciously aware of its intrinsic nature. From very early age, we internalize social facts and (most of the times) do not question their values even when we grow up.

When status functions become general, they acquire a normative force (Searle, 1995). We take institutional facts for granted and commit ourselves to the normative force of collective intentionality. We act accordingly and expect others to do so, as well. We learn that certain small bits of paper are money and we can buy things only when we give them, etc. To be competent members of their society, children have to adopt these collectively agreed constitutive rules. Moreover, they have to be sensitive to the issue of "context" since there are different institutional contexts and while "X counts as Y in the context of C", it might not be counted as Y in another context. Therefore, children must be careful on the context-relativity of rules since the normative power of rules is dependent on the context within which they are executed.

From a developmental perspective, it is crucial to understand how and when young children start to understand both the rules and the normative forces they bring. However, complexity of the current institutional world might be too overwhelming and not interesting for young children so that abilities for normative understanding might be overlooked. Therefore, how to study collective intentionality became a matter of debate, recently. Rakoczy (2007) suggested "…playing games is one cradle, or zone of proximal development, for later and more sophisticated forms of collective intentionality and conventionality." (pg.54). In pretend play objects gain certain new status by the shared intentionality of the players. Rule games are constituted by certain constitutive rules and children have to understand rules to play the games efficiently. Therefore, both pretend play and rule games can be beneficial tools to assess the development of children's understanding of rules and their context-relativity.

2.1.4. Normativity in Preschool Children

2.1.4.1. Understanding of rules and norms

A long tradition of empirical research starting with Piaget (1932) claimed that children could not differentiate between conventional rules, moral rules or natural contingencies until around 10 years of age. This suggestion, however, relied on interview studies conducted with children. The details of *to what degree* and *what kinds of laws* were conflated by children was not certain; yet, it was assumed that children fail to differentiate between different sources of laws and perceive them as unchangeable and universally existing. The reason behind this inability was considered to be children's belief that all kinds of rules and laws were independent of human intention. However, children's actual abilities might probably be overlooked in these studies due to overly demanding experimental tasks that focused on

modal logical structure of conventionality (Rakoczy et al., 2008). To illustrate, children were asked questions (and their correct answers) such as "Could cows have been called horses? – Yes, if history would be different." (pg. 880). Understanding and expressing norms in this way might be hard for children due to their inability of fully grasping counterfactual reasoning. Moreover, differentiating norms from laws might not always go along with understanding their arbitrariness and contingency (Rakoczy et al., 2008). Recent studies present evidence that children are better on differentiating natural laws, conventions and moral laws than former studies had claimed.

To understand whether children can differentiate between the reasons of conformity to social rules and physical laws, children were told different stories in which a protagonist "can't" violate physical laws or social rules and preschoolers were asked to give reasons for this inability (Kalish, 1998). Children gave different reasons for social rules and physical laws. Conformity to social rules was explained due to permissions, obligations or consequences while conformity to physical laws was due to impossibility of that certain action. Furthermore, children were questioned about their understanding of the role of intentions (mental states) on conformity. The results suggested that 5-year-olds were aware of the distinction that physical laws were independent of mental states while social rules were dependent on the intentions of people.

Preschool children are also able to differentiate moral rules from conventions. Children perceive unconformity to moral rules "…as more serious offenses and as more deserving of punishment…" than unconformity to conventions across different cultures (Yau & Smetana, 2003, pg.647). To illustrate, dressing according to different conventions might be acceptable across different cultures, yet stealing is always evaluated as a serious transgression (Nucci & Nucci, 1982). When children were asked why moral transgressions are more serious offenses than transgression of conventions, children explained that moral transgressions harm other people while conventions are consequences of customs only (Davidson, Turiel, & Black, 1983; Turiel, 1983; 1989). Moreover, as young as 3-years-of-age, children understand deontic conditionals such as "If Anne wants to play outside, she must wear her coat." better than descriptive conditionals such as "When Anne plays outside, she always wears her coat." (Harris & Nunez, 1996).

All of the studies mentioned above give important insights about children's understanding of rules, laws and conventions. However, all of them were interview studies and conducting interview studies with children has a crucial confounding variable, namely language. Since language is the main intermediate tool in interview settings, understanding the experimenters

and expressing one's beliefs are totally dependent on one's competence in language. Kalish (1998) stated that, when they were questioned about physical laws and social rules, adult participants elaborated their answers and emphasize the difference between impossibility *versus* impermissibility since they understood what was expected from them in the experimental context. However, children may be less sensitive to contextual and conversational demands. Therefore, even though interview studies might yield some first valuable insights, they are prone to underestimate children's actual competence.

2.1.4.2. Studies on Pretend Play and Conventional Games

Rule-governed, conventional play is a fundamental part of human life especially in the childhood period. Two children playing with a stick as if it is a toothbrush and making movements like brushing their teeth may seem trivial; however, this seemingly simple activity indeed requires understanding of "we"-intentionality. Rakoczy (2007) suggested that games might play a considerable role in children's development into humans' institutional world in the following way:

> "[H]umans share with many species the ability to play. But only human infants are cognitively capable of cultural learning, of entering into collective intentionality, and so they grow into shared forms of conventional, rule-governed play, that is, into playing games. And playing games, in turn, in a dialectical fashion, provides children with a cradle for engaging in more complex forms of collective intentionality and conventionality." (pg.57)

This hypothesis can be criticized claiming that play is a non-serious activity. However, who decides whether playing is non-serious? Is relying on the adult's point of view the correct way for understanding the child's perspective? To understand whether play can be considered as a serious activity that requires and strengthens mechanisms for we-intentionality, one at least should try to look from the child's perspective and observations of children's playing can give important insights on this issue.

Simply, games can be divided into two general categories, namely pretend-play and rule games (Rakoczy, 2007). In pretend-play, players treat a certain entity as something different than it actually is and act accordingly. For this purpose, all of the members of the play share the same intention. For instance, in the "toothbrush" example given above, to successfully play the game, both of the children should share the same we-intention and believe that the stick is a toothbrush. Yet, in another game, the same stick can be treated as a pen. As can be seen, Searle's formula of status functions: "X counts as Y in context C" perfectly applies to

pretend-play. In the context of the "toothbrush game" (C), a stick (X) counts as a toothbrush (Y), while in the context of the "drawing game" (C*), a stick (X) counts as a pen (Y*). In these games, children constitute a rule together (treating a stick as a toothbrush) which relies on status functions and they expect each other to treat the stick as a toothbrush. In this respect, even though pretense games do not inherit certain rules like rule-games, pretense games also involve constitutive rules and mutual expectations to act accordingly.

In order to study normativity and context in pretense-play, Wyman, Rakoczy, & Tomasello (2009) designed experiments in which experimenters and children play pretense games together. These experiments presented evidence that even 3-year-old children can differentiate between an object's causal function and its status function. Moreover, the same children see the difference between different status functions of the same object in different contexts. What is more interesting is that children not only see the difference between functions but also force their partner to conform to the rule (in this case, the rule of treating the object in a certain way) they had previously constituted.

Unlike pretense games, rule games comprised certain pre-defined rules and the players have to conform to the rules of the game to play it successfully. Similar to pretend games, rule games can be considered as displays of we-intentionality and expecting each other to act in a certain fashion creates normative expectations. Therefore, rule games are considered as providing beneficial contexts in which normative understanding of children can be studied. Rakoczy et al. (2008) presented an experimental design in which a child and two experimenters play novel games that can be played only with certain rules. The procedure consisted of two phases. In the teaching phase, one experimenter (E1) teaches the child a game (e.g. "daxing"). Then, a puppet played by another experimenter (E2) enters the context and plays the game. Yet, there is a crucial difference between conditions of the experiment. In the teaching phase of the experimental condition, E1 emphasizes a certain way of playing as "This is how daxing goes!"(target game) and presents another way of playing saying "We cannot play daxing in this way!" (distracter game). On the other hand, in the control condition, E1 presents both ways for playing without emphasizing any way more than the other. Furthermore, in testing phases of both of the conditions, a puppet named Max enters the game and displays the distracter game. While, in the control condition, Max utters "I am going to play", in the experimental condition he says "I am going to dax now!" By these different utterances, Max defines in which context he is going to play. Normative reactions of children showed that even 2-year-olds have a grasp of the difference between experimental and control condition; they protested more in the experimental condition.

Moreover, they expected the puppet to conform to the norms of the game. Context-relativity was also observed in 3-year-olds and their protests were more explicit in comparison to 2 year-olds. Furthermore, the same experiment was conducted with a Turkish sample and similar results were found (Tunçgenç, 2012). These results are very intriguing since they suggest that from early on children can differentiate between different contexts, conform to the rules according to requirements of those specific contexts and additionally explicitly force others when they did not conform.

In the study mentioned above, there was a reason for using a puppet (Rakoczy et al., 2008). At first, authors followed the same design, except an adult experimenter played the game without the intermediacy of a puppet. However, researchers observed that children seem to avoid protesting the adult's misbehavior. Therefore, they added a puppet to the procedure relying on the idea that children might be more comfortable protesting against a puppet instead of an adult. They were right, since children protested against the puppet more compared to an adult. Yet, still it was obvious for children that an adult played the puppet and it is highly likely that children's full-blown protests might not be observed in this setting because of this reason.

Engemann (2010) used a peer conflict paradigm, to overcome children's possible reluctance of protesting against adults. In this procedure, there were sorting games, which can be played in two ways (i.e., sorting according to two different dimensions). Two children were taught separately different rules for playing a specifically named game. To illustrate, one of the children were taught that the rule of the "Tube Game" was to sort according to the color while the other child was taught that the rule of the Tube Game was to sort according to the shape dimension. Then, children were instructed to play the Tube Game together. The aim of this procedure was to create conflicting we-intentions in children: While one child believed that the rule of the Tube Game was to sort in terms of color, the other believed that it was shape. Crucially, the conflicting we-intentions arose due to the belief of both children that both of them had been taught the same rule. If we apply Searle's formula here, according to one child, a correct move in the context of the Tube Game is sorting according to color while the other child believes that a correct move in the context of the Tube Game is to sort according to shape. Since these children actually did not share the same we-intention but believed that they did, it was expected that they mutually expected each other to play according to *their way of playing* and protested against the other when s/he did not.

In the control condition of that experiment, both of the children were taught that there were two ways of playing: the "Shape Game" and the "Color Game". Since they were aware of

two different contexts and different rules applying in these contexts it was expected that they would not protested (or protest less) against each other. The results of the study showed that children protested against their peers in the experimental condition. They wanted their peers to act according to their misleading we-intentions and when they did not, children protested against their peers. However, an important developmental difference was observed between 3- and 5-year-olds. While 5-year-olds were context-sensitive for rules meaning that they protested against their peers more in the experimental condition than in the control condition, 3 year-olds protested similarly in both of the condition. This evidence suggests that 3-year-old children are also loyal norm protectors protesting not less than 5 year-olds. Yet, they were not context-sensitive.

2.2. Emotion

"One of the greatest puzzles of human nature concerns the poorly understood interplay between affect and cognition." (Forgas, 2008, pg.94). Even though the relationship between affect and cognition preoccupied great philosophers and other great thinkers, the topic had been neglected in psychology and cognitive science since the beginnings of 1980s. Cognition and emotion had been thought as independent and unrelated domains, which resulted in disregarding emotions from experimental research. There might be several reasons why cognition and emotion had been perceived as two different, unrelated mechanisms (Forgas, 2008). Even though every individual has a view of what emotions are and how emotional processes work, it is hard to conceptualize emotions and emotional processes objectively and study them experimentally. Secondly, emotions had been perceived as useless, irrational mechanisms, which have no functions for human living and survival (Skinner, 1948).Besides, some other thinkers define emotions as dangerous, invasive forces that undermine the rational mind and a fatal flaw of human evolution (Koestler, 1978). In the cognitive revolution, in the 1960s, emotion had been seen as a source of disruption and noise and became neglected within the study of cognitive information processing for some time (Forgas, 2008). However, starting with the beginnings of the 1980, emotions have become an important research topic and the interrelation of cognition and emotion has aroused a great deal of interest that can be considered as an "emotion revolution". Today, the hypothesis that emotion and cognition are two interrelated processes each of which has considerable influences on the other has been supported by experimental and neuroscientific research (Forgas, 2008; Davidson, 2000).

As members of a socially constructed world, we both conform and expect others to conform to the norms of our society. Besides normative understanding, another aim of the present

paper is to assess the relation of normativity and emotion. Humans are somehow motivated to conform to the rules of their cultural group and perceive transgressions as serious offenses. All these process are somehow related with emotions, as well. People feel certain emotions when they do and do not conform to the norms of their social group and also have some other emotions when other members of the group show or do not show conformity (Keltner & Haidt, 1999; Lutz & White, 1986). Therefore, we think that researching on the nature of this relationship of emotion and norms is a promising field of study. Specifically, we assume that emotional processes might be related with the normative power of the socially constructed rules. Furthermore, not only are emotions related to the adherence or non-adherence to norms in everyday life – people feel positive and calm emotions if norms are adhered but negative and arousing emotions if norms are transgressed – but also norms may have emerged in human evolution and culture in the first place because of their regulating function on emotions. Adhering to commonly agreed-upon norms, which do not have to be questioned anymore once they are established, may relieve individuals from emotion-intensive conflicts with other group members. Rather, appealing to the norm may resolve the conflict or even prevent it to occur. In this view, norms are a culturally achieved cognitive means to (down-) regulate potentially harmful aggressive emotion between group members. How this potential function of norms on emotion (regulation) develops in human ontogeny, may shed light on the emergence of norms in human cultural and social evolution. To advance in this research question, understanding intra-individual emotional processes might be beneficial for understanding inter-individual emotional processes.

2.2.2. Theoretical Explanations

2.2.2.1. What is Emotion?

Even though the recent interest in emotion and its relationship with cognition, there has been disagreement on how to operationally define emotional processes and the presence and order of the components of an emotional episode. Yet, there is a general assumption that emotions are biologically prepared capabilities that enable quick evaluations of the world around us and elicit readiness for action tendencies (Cole, Martin, & Dennis, 2004; Lowe & Ziemke, 2011).

When emotion is endorsed as a scientific phenomenon, it is more practical to emphasize the term “emotional episode” for this purpose since emotion is not a unitary phenomenon; rather, there are different prototypical processes that are related with emotion. Therefore, the term emotional episode is a more convenient concept for the study of emotion. Even though

there are different approaches to emotion, there are certain components that are usually mentioned in these different approaches. In this view, an emotional episode has/is:

> "(a) a cognitive component; (2) a feeling component, referring to emotional experience; (c) a motivational component, consisting of action tendencies or states of action readiness … (d) a somatic component, consisting of central and peripheral physiological responses; and (e) a motor component, consisting of expressive behavior"(Moors, 2010, pg.1).

2.2.2.2. Emotion Causation

There are numerous psychological and philosophical theories regarding emotion and emotion causation (Schacter, 1964; Arnold, 1960; Frijda, 1986; Lazarus, 1966; Bower, 1981; Izard, 1977; Ekman, 1992; Barrett, 2006; de Sousa; 1987). All of these theories answer different questions about emotion. To understand the general picture, differentiating the levels of analysis for the study of emotion is a reasonable approach (Moors, 2010). Following Marr's (1982 as cited in Moors, 2010) levels of analysis for emotions, firstly, there is a functional level, which questions the relation between the stimuli and the response(s) given to those stimuli. Secondly, there is an algorithmic level that examines the mechanisms and format of representations of emotions. Thirdly, and finally, there is an implementational level, the underlying neurological structures of emotion causation. All these levels ask specific questions about the elicitation, intensity and differentiation of emotion causation.

The present experiment adopts an analysis that lies within the functional level. As mentioned above, a functional level analysis is interested in elucidating what kind of stimuli elicit emotions and which type of emotional stimuli elicits which kinds of emotion. Specifically, the present study asks whether there is a direct or indirect relation between norms (more specifically: normative conflict) and emotional processes in terms of elicitation of emotions. Appraisal theories of emotion (Arnold, 1960; Frijda, 1986, Lazarus, 1988, Scherer, 1984) seem appropriate and practical tools for this purpose. The term appraisal refers to judgments of the significance of a stimulus in terms of one's goals. Therefore, appraisals of stimuli are the determinant of the judgments of whether a stimulus elicits emotions or not, and, if it elicits emotions, what kind of emotions will be elicited. Appraisal corresponds to the cognitive component of an emotional episode, yet conscious cognition is unnecessary (Kunst-Wilson & Zajong, 1984).

If a stimulus (intrinsic or extrinsic) is appraised as having significant importance, it elicits certain action tendencies (motivational component). According to appraisal theorists, cognitive appraisals precedes both physiological responses (e.g. facial expressions, blood pressure) and (if any) motor behaviors. Finally, emotional experience (feeling) is considered as the "… totality of the traces that all the other components leave in consciousness." (Moors, 2010, pg.14). However, it should be noted that even though the order of the components of an emotional episode is displayed in this way, processing in one component need not be completed before the initiation of the following component. Furthermore, components continuously get feedback from the other components.

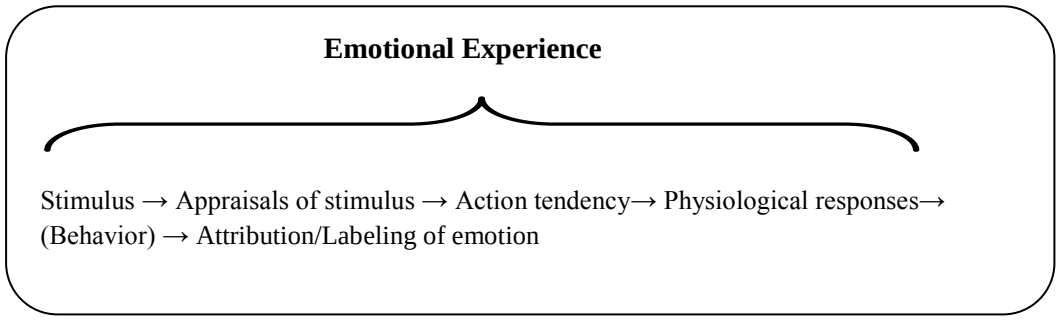

Figure 2.1. Order of emotion elicitation in appraisal theories (adapted from Moors (2010, pg.14) Figure 1.3)

Appraisal theories of emotion address questions such as which stimuli elicit emotions, the relation of stimuli characteristics with respect to the intensity of the emotions and which specific emotions are elicited by which stimuli. However, there is an agreement on the impossibility of stating which fixed stimuli elicit which emotions since the appraisals of the stimuli is always dependent on certain characteristics of the 'processors' and the context (Moors, 2010). Different emotions might be elicited by the same stimuli or different stimuli might elicit similar emotions. To illustrate, the breaking of a toy might result in anger or sadness in one child because of the loss of the loved toy but it can also elicit happiness in another child, e.g. if it causes his/her parents' buying a new one. However, even though it is impossible to strictly determine individual stimuli for emotion elicitation, theorists determined variables that are important in terms of emotion elicitation. One of these variables is "goal relevance". It suggests that stimuli elicit emotions only if they have significant importance for one's goals. For instance, hearing an insult about one's personality is not inherently emotion eliciting. However, it threatens one's goal of maintaining reputation; therefore, it elicits certain emotions.

Another variable that is fundamental for emotion elicitation is "goal congruence". This variable suggests that congruency between goal and stimuli are crucial in terms of the valence of the output emotion. When there is a match between goal and stimuli positive emotions are elicited. In contrast, a mismatch between goal and stimuli results in elicitation of negative emotions. In addition to general variable of goal congruence, certain specific variables were proposed to differentiate emotions into more specific classes. To illustrate, it was proposed that anger and sadness are elicited by a mismatch between the goal and the stimuli while fear is elicited by the perceived possibility of a mismatch (Arnold, 1960). When we consider this variable in terms of the purpose of the present experiment, the relation of rules and emotions might be demonstrated. As mentioned above, intentions consist of goals and certain mental representations to achieve those goals. To illustrate, in Engemann's (2010) procedure, two children had a shared intention to play the game correctly. The *correct way of playing*, in this case, corresponds to playing the game according to the rule they were taught earlier. When the partner plays the game *incorrectly*, s/he also prevents their common goal of *playing the game correctly*. The question is to what degree playing the game as consistent with the rules is a significant goal for children. From an appraisal theorist point of view, if playing according to the rules is a significant goal for children, they are likely to experience negative emotions when their partner prevents them to achieve their goal. Of course, this kind of reasoning does not explain why rules are important for them and why they adopt the goal of *playing correctly* in the first place. Yet, emotional reactions of emotions might give us an insight to what degree the rules of the game are important for children. In a developmental perspective, we are also interested in seeing whether the relation between norm transgression and elicited emotions – their emotion regulation ability – changes over the course of the development from younger (3-year-old) to older (5-year-old) children and whether this may have something to do with children's understanding of normativity.

2.2.3. Emotion Related Concepts

2.2.3.1. Emotion Regulation

Contrary to the earlier view on emotions as irrelevant to human behavior (Skinner, 1948), recently, it is widely accepted that emotions serve important functions as adaptations to problems posed by social and physical life. For instance, Oetley and Johnson-Laird (1987) claim that emotions facilitate decision-making processes while Frijda states that emotions enable rapid motor movements (1986). Moreover, emotions are believed to serve functions for social interactions such as maintaining cooperative relations, forming attachment etc.

(Gross, 1998). However, stating that emotions serve for important functions does not mean that they are functional in their every instance. There are times, when it is better to regulate emotions for more important goals such as optimizing well-being or maintaining good relationships with others, etc. Humans usually "feel" in order to regulate their emotions; they resist to *what their emotions tell them* but act in another way. This is also why emotions are constructed as appraisals and certain action tendencies. The term action tendency is used rather than action, since many other variables have roles in the process of whether that certain action will be displayed or not (Gross, 1998).

A widely accepted definition of emotion regulation is as follows: "emotion regulation consists of the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals." (Thompson, 1994, pg.27). In this definition, extrinsic processes refer to the interventions from others while intrinsic processes refer to self-management strategies that are attempts to either decrease, increase or maintain the intensity or the valence of emotions. Before going further, we should make a differentiation between "emotion as regulated" and "emotion as regulating", since in the literature, both of them are mentioned (Cole et al., 2004). What is usually meant by emotion regulation is "emotion as regulated" meaning how emotions are regulated. This point leads us to the important theoretical difference between emotion and emotion regulation. The concepts of emotion and emotion regulation might be confused with each other, since emotions, themselves, have regulatory powers, as well (e.g. physiological processes, cognitive processes etc.). Emotion is conceptualized as the responses that are given to the changes in both the external and internal environment (e.g., negative affect, fear, cardiac reactivity, etc.) (Rothbart & Sheese, 2007). To illustrate, consider a scenario where a child fears a dog. In this case, the emotion of fear is itself regulatory. It can predispose behaviors such as withdrawal, attack or behavioral inhibition. However, these regulatory characteristics should not be confused with the concept of regulation. Emotion regulation is conceptualized as regulation of emotions, but not the regulatory forces of emotions on other processes.

The development of emotion regulation is a highly studied topic. This might be due its fruitfulness since abilities of emotion regulation change tremendously throughout development. Experimental studies on infant temperament revealed that infants display certain behavioral strategies such as gaze aversion, self-sucking or proximity seeking to a caregiver (Rothbart & Bates, 1998). These behavioral strategies are considered as emergence of early emotion regulation skills. Yet, in the first years of life, caregivers have a crucial role

in terms of regulating their babies' negative emotions by soothing, diverting their attention to something different, etc. From two-years to five-years of age, children acquire a broad range of abilities for emotion regulation. However, it is hard to design experiments for emotion regulation since it is, first, unethical to induce high levels of negative emotion in experimental settings. Secondly, it is not easy to activate emotions across different individuals by the same setting. Fortunately, there are certain experimental settings that can be used in developmental studies. By standardized settings, researchers induce low-levels of negative emotions that children usually come across in their daily lives. Some of these experiments include procedures in which children are separated from their parent, have to wait for a while to receive a desirable object (Grolnick, Bridges, & Connell, 1996) or are not given an expected toy as present (Saarni, 1984). The results of these studies suggested that self-distraction (directing attention away from the emotional object or event), self-soothing (Denham, 2007, pg.7) are certain strategies that young children adopt in these settings.

There is one crucial point, which requires discussion. Assumed emotion regulation strategies might not be the result of regulation but they might be due to low levels of emotions (Grolnick et al., 1996; Saarni, 1984). How can we know that children who show strategies like self-distraction, indeed, have less negative emotions in comparison to children who did not seem to adopt a regulatory strategy? (Cole et al., 2004) Emotion regulation is characterized as processes by which individuals regulate their already existing emotions; therefore, to regulate an emotion, one, first of all, has to have an emotion. Since there are huge individual differences in emotional reactivity, it is hard to understand whether a person who is less angry has regulated his/her emotions or already has less emotions in comparison to an individual who seems angrier (Cole et al., 2004). Therefore, the problem is how to disentangle emotion from emotion regulation. They follow different developmental pathways (Koole, 2010) and, theoretically, it was suggested that the temporal unfolding of these processes might help researchers to assess at which point emotion regulation starts. As Lazarus (1991) puts forward, individuals' primary emotional responses might be different from their secondary emotional responses. While primary responses are considered as emotional reactivity itself, secondary responses are the consequences of emotional regulation. This conceptual explanation is logical since emotion regulation is a control process, and the processes it will control have to be activated before it. However, making this differentiation is not always practically applicable, since individuals can rapidly regulate their emotions (Koole, 2010). Still, researchers should always be cautious at evaluating emotion and emotion regulation.

How does emotional regulation help us in our daily lives? This question usually appears in the literature as in the form of the functions or goals of emotion regulation (Koole, 2010). Firstly, a traditionally accepted function of emotion regulation is to promote satisfaction of hedonic needs. It is assumed that being in a negative emotional state needs both physical and mental resources. Therefore, a decrease of negative emotions enables conserving these resources and reaching hedonically preferable states. Secondly, emotion regulation helps individuals to achieve certain goals. In social interactions, people are usually expected to remain "…cool and collected…" (Koole, 2010, pg. 137) and by means of emotion regulation, individuals satisfy displaying what is expected from them (Thompson, 1994). Thirdly, emotion regulation is considered as crucial for a long-term optimized personality functioning.

2.2.3.2. Temperament

The concept of temperament yielded a great deal of discussion and studies especially in the area of developmental psychology (Goldsmith et al., 1987). There is general agreement on its conceptual characteristics. Some of the agreed points are that temperament is a source of tendencies but not directly causes behavior; they are biological underpinnings of behavior. Furthermore, it is agreed upon that the link between temperament and behavior is more direct in infancy and becomes more complex throughout maturation. In spite of these consensus points, there are crucial points of disagreement on defining the boundaries of temperament, concerning, e.g. behavioral style, the relation to emotional behavior, and inheritance. While activity level and emotionality are the agreed-upon dimensions of temperament, no further dimensions are entertained by all theorists. Due to its conceptual and methodological advantages, the present study will draw upon the Temperament Systems Framework developed by Rothbart (1989d).

Rothbart and Bates (2006) define temperament as "…constitutionally based individual differences in reactivity and self-regulation, in the domains of affect, activity and attention." (pg.332). In order to go beyond this definition, the concepts of self-regulation and reactivity should also be defined. Reactivity is conceptualized as the responses that are given to the changes in both external and internal environment (e.g., negative affect, fear, cardiac reactivity…). On the other hand, self-regulation is conceptualized as regulation of reactive responses; however, not the regulation of action tendencies and physiological mechanisms by these reactive responses. The difference can be clarified with the following quotation: "Orienting early in life is reactive, but when adults present distracters to infants, it has regulative effects on the expression of the infants' emotions…Later, orienting comes under

the control of executive attention." (pg.333). Therefore, self-regulation is the modulation of an emotional reaction and it can occur by the inhibition, activation or graded modulation of a reaction.

According to the systems approach endorsed by Rothbart and Sheese, "…affect, cognition, and behavior are organized around the goals of the organism… These goals have been evolutionarily conserved in the nervous system but will also be programmed by the person's specific experiences and plans." (Rothbart & Sheese, 2007, pg.334). To illustrate, the defense system, comprises fear and anger which serves "…the goal of avoiding harm by promoting organized responses to immediate or long-term threats" while the approach system "…serves the goal of resource acquisition by promoting organized responses to potential rewards." (Rothbart & Sheese, 2007, pg.335,336). Moreover, as defense and approach systems regulate behavior, they are regulated by the higher-level executive attention system. Capabilities of this regulatory mechanism are conceptualized as "effortful control" and effortful control is defined as the ability to inhibit a prepotent response and, instead, to display a subdominant, but more appropriate response (Rothbart & Rueda, 2005). Experimental studies suggested that both reactivity and self-regulatory systems comprises certain differentiated factors. The approach system corresponds to extraversion/surgency; it includes factors such as impulsivity and activity level (and is negatively related with shyness). On the other hand, the defense system reflects inherently negative emotions such as anger/frustration, fear, and discomfort. Furthermore, effortful control comprises factors of attentional focusing, perceptual sensitivity, and inhibitory control (Rothbart, Ahadi, Hershey, & Fisher, 2001).

2.2.4. Emotion Socialization

Emotion plays a crucial role in our social world by influencing the way individuals interact with others. Starting from early childhood, individual emotional reactivity patterns directly or indirectly shape children's social interactions (Denham, 2007; Rubin, Coplan, Fox, & Calkins, 1995). Moreover, not only emotional reactivity but also emotion regulation abilities have significant importance since members of social groups are expected to show certain emotional displays but hide some others (Saarni, 1984). Therefore, as becoming partners in social interactions, children have to acquire certain emotional abilities, which in turn, increase their social competence in their relationships. Emotional abilities are assembled together under the umbrella term of "emotional competence". Emotional competence "includes expressing emotions that are, or are not, experienced, regulating emotions in ways that are age and socially appropriate, and decoding these processes in self and others."

(Denham, 2007, pg.1). Research suggest that emotional competence is strongly related with social competence, as well (Denham, 2007). As Denham puts it: "One of preschool-aged children's most important developmental tasks is achieving sustained positive engagement with peers, while managing emotional arousal within interaction and beginning to meet the social expectations by persons other than one's parents" (2007, pg.2). She proposed three important issues that are critical for children's emotional competence: emotional expressiveness, emotional knowledge and emotion regulation.

Emotional expressiveness is the first variable that influences children's interaction with the others. Displaying positive emotions more than negative ones paves the way for better relationships with both peers and adults. This is very expectable, for instance, a child who displays aggressive behaviors toward her playmates is more likely to be excluded from the game. Secondly, children's emotional knowledge influences their interactions. Emotional knowledge comprises individuals' knowledge of different kinds and intensities of emotions and their ability to understand or infer emotions in different contexts. Studies showed that children who are successful at understanding others' facial expressions or inferring which emotions are likely to be elicited in which contexts display more prosocial behaviors towards their peers. To illustrate, a child who can understand that her friend is experiencing sadness or fear is more likely to act according to the needs of her friend in comparison to a child who cannot understand her peers' emotions. Therefore, children who are more competent in terms of understanding emotional cues are more likely to be regarded as likable friends or playmates (Denham et al., 2003, pg.239). The concept of emotional knowledge includes the knowledge of cultural emotional display rules, as well. Studies showed that children are aware that certain emotional displays are appropriate while some others are not and, as a result, they are aware that they should regulate their emotional displays (Gross, 1998).

In addition to emotional expressiveness and emotional knowledge, emotion regulation abilities are a crucial component of emotional competence, which, in turn, plays role in one's social competence. In every social context, people have certain expectations in terms of emotional display rules. When the goals of emotion regulation are mentioned, they are almost always related with social interaction (e.g. Denham et al., 2003; Gross, 1998; Rubin et al., 1995). "When the intensity, duration, or other parameters of the experience and expression of emotion are 'too much' or 'too little' to meet goals and expectations of the child and/or social partners, emotion regulation is needed." (Denham, 2007). Indeed, abilities of emotion regulation might be the most critical component of emotional competence (Blair, Denham, Kochanoff, & Whipple, 2004).

2.2.5. Emotional Reactivity Hypothesis

As humans, we are living in cultural groups, we have complex social relationships with other individuals, we cooperate, collaborate, share our knowledge with others even if they are strangers to us (Tomasello, 2009). The success of the human species in constructing such intricate social relationships is usually attributed to their abilities of understanding others as mental agents having their own desires, beliefs, goals or intentions, i.e., ToM. In the developmental trajectory, infants, first, start to perceive others as intentional agents and, then, can share intentions with others (Tomasello & Carpenter, 2007). Later, at around 4 years-of-age, they start to understand that other people have beliefs, desires or thoughts that are independent from reality (Wellman, Cross, & Watson, 2001). These two cognitive skills, shared intentionality and theory of mind, were considered as the two underlying mechanisms that make humans so different from even their nearest primate relatives in construing such complex social relationships and groups. However, recent comparative studies presented evidence that chimpanzees can also perceive other chimpanzees as having different perceptual states and differentiate intentional actions (displayed by humans) from accidental actions (Tomasello et al., 2003). Therefore, Hare and Tomasello (2005) suggested that what makes humans' behavior so flexible might not be due to their ability to understand others' perceptions or intentions but something different.

Hare and Tomasello (2005) suggested that changes in humans' emotional responses to others, namely the decrease in aggressiveness and fear, might be the reason for humans' extraordinary social skills. This hypothesis is called "emotional reactivity" hypothesis. The following observation led Hare and Tomasello to it: Domesticated dogs are very skilled at understanding human-social cues. They can use novel and arbitrary cues to find some hidden food, and do not approach forbidden food if a human can see them. On the other hand, chimpanzees do not show understanding of this kind of social cues. Then, the question arises: Why is it that dogs have skills for understanding human-social cues but not apes who are supposedly more intelligent? The answer is neither having continuous interaction with humans after birth (since even 9-month-old puppies performed almost perfect in these tasks and dogs that do not experience living with humans have these kinds of abilities) nor their evolutionary past (Dogs evolved from Old World wolves and wolves do not show these kinds of understanding of human-social cues). Rather, it is suggested that dogs' considerable abilities in understanding human-social cues might be due to a convergent cognitive evolution of humans and dogs.

The following interesting line of research provides evidence for this hypothesis: starting in the 1950s, a Russian geneticist, Dimitry Belyaev and his team, spent many years breeding foxes (silver foxes) and selecting only those individuals that showed the least fear and aggression towards humans. Eventually, after successive generations, foxes in the experimental group started to approach humans rather than running away from them. Moreover, characteristics that are also associated with other domesticated animals such as high prevalence of floppy ears, curly tails, piebold coats, less robust skeletons. Moreover, compared to control foxes, who were bred randomly in respect to approaching humans, experimental foxes performed better (similar to dogs) in the tasks necessitating understanding of human-social cues. This is very interesting since the foxes were only selected on the criteria of low levels of fear and aggression towards humans but they also started to show abilities of understanding human-social cues. These results suggest that low levels of emotional reactivity may pave the way for abilities for understanding cooperative-communicative social cues.

Foxes' increased abilities on tasks requiring understanding of human-social cues after fear and aggression had become decreased inspired Hare and Tomasello in hypothesizing that similar mechanisms might play a role in humans' evolution of complex social skills. With this hypothesis in mind, researchers delved deeper into the question in which conditions chimpanzees make use of human-like social cues. For instance, they designed experiments in which two chimpanzees had to pull a rope together to retrieve food (Melis, Hare, & Tomasello, 2006). They found out that chimpanzees only act together either when "(a) the food is sharable, (b) the partners are out of each other's reach while they pull, and (c) the partners have shared food previously in a similar context." (Hare & Tomasello, 2007,pg. 62). If these conditions were not met, they did not act together. This is probably due to the subordinate chimpanzee's want to eliminate the possibility of being attacked by a dominant one after retrieving the food. This is quite possible since chimpanzees' aggression is high and might be lethal towards strangers. Taking this point and the experimental observations into consideration, the emotional reactivity hypothesis suggests that the reason of why chimpanzees do not show human-like social communicative skills might be due to their high levels of aggression and fear.

The emotional reactivity hypothesis suggests that humans also must have had a self-domestication period in their evolutionary past with respect to emotional reactivity. Decreases in aggression and fear towards other members of the group resulted in a gentle human temperament which paved the way for the appearance of higher-level social skills.

This makes sense since "… a more sophisticated theory of others' behavior or mental states would be of little use when cooperating individuals are rarely able to share the rewards of joint effort." (Hare & Tomasello, 2005, pg.5). Therefore, the evolution of human temperament towards lower emotional reactivity might be a pre-requisite for the appearance and evolution of more complex social interaction and communication skills, including ToM.

2.3. Norms, Social Reality and Emotions

Lately, it has been widely accepted that there is a critical bond between norms and emotions. This relationship can sometimes appear in the direction of (1) emotions as an instrument that helps sustaining norms, or (2) specific norms as regulating the emotional life of individuals (Ekman & Friesen, 1975; Hochschild, 1979). Furthermore, it would be beneficial to break down the former condition into two since individuals have two roles in terms of the influence of emotions on engendering the continuity of norms. First, if they are subject to conform to the norms, they are likely to feel certain negative emotions if they do not conform, (e.g. guilt, embarrassment). Secondly, if they are the beholders of the norms – as an authority figure for the others around them – they feel and display certain emotions (e.g. anger, contempt, disgust) when others do not comply with the norms. Therefore, people *feel* both when normative structure exerts power on them and when they exert normative power on other people. The causality in this relationship, however, is questionable. One hypothesis might be that emotions, themselves, support the creation of the normative force, while an alternative hypothesis is that the normative force results in emotions. Yet, it is highly likely that there is a reciprocal relationship between the two.

As stated, one direction of the possible causal relation between emotions and norms is "emotions as an instrument for sustaining social norms". Keltner & Haidt (1999) reviewed social functions of emotions at both the group and cultural level. At the group level, first, emotions are means of helping individuals to define group boundaries (Durkheim, 1915/1965 as cited in Keltner & Haidt, 1999). Negative emotions such as hatred, anger, disgust towards non-group members strengthens the identity of group membership while fear of death seems to increase the unity of the in-group and the perception of inferiority of the out-group (Greenberg et al., 1990). Moreover, fear of being ostracized motivates people to conform to the rules (Baumeister & Tice, 1990). In addition to the group level of analysis, Keltner and Haidt (1999) presented suggestions for the functions of emotions at the cultural/institutional level. Emotions indirectly help to maintain cultural identities by forcing people to act according to those; or else, they would be prone to emotions such as embarrassment. Furthermore, emotions serve helping children to learn the norms and values

of their culture. Certain emotional responses from others are important sources of information for children whether certain behaviors are "right" or "wrong" (Shweder, Mahapatra, & Miller, 1987). Therefore, children can make use of others' emotional responses in the process of understanding the normative and moral boundaries of their culture.

2.4. Potential Underlying Cognitive Domains of Normative Understanding

2.4.1. Theory of Mind

In addition to understanding intentions, at some point in their development, children begin to understand that other individuals can have beliefs, thoughts, desires or emotions different from reality and different from their own knowledge. They understand that the world is not about how they *see it* but that every individual has their own way of seeing it. Taylor (2005) suggests that to be able to have a Theory of mind (ToM), there are two conditions that an individual must meet. Firstly, one must be aware that both one-self and other people interpret incoming information. Secondly, one must be able to predict, understand and explain the behaviors of others by the use of incoming information. There is disagreement on the processes underlying ToM, yet the significance of the ability is widely accepted. Understanding others' thoughts, desires and beliefs enables children to make behavioral predictions about what others will do, which is crucial for social interaction (Perner & Lang, 1999). Since social interactions constitute a great deal of our lives, ToM is an important ability, which plays a significant role in both the construction and maintenance of social relationships. Therefore, ToM understanding is a crucial milestone in the development of human children.

There are certain classical experimental procedures that were highly used in the literature. "False Belief"[4] is probably the most popular one. In these tasks, children are told certain stories in which a protagonist holds either beliefs, thoughts, or emotions that are different from reality, or desires that are different from theirs (see Appendix D for the tasks). Then

[4] The False belief task which was developed by Hogrefe, Wimmer, & Perner (1986) to understand whether children can understand people might hold false beliefs about reality. In the classical scenario (Perner, 1991), children are told a story about a child named "Maxi". In the story, when Maxi and his mother return from shopping, Maxi puts a chocolate into a drawer, and then he goes outside to play with his friends. Later, his mother comes, takes some part of the chocolate from the drawer in order to make a chocolate cake. However, his mother puts the chocolate back into the refrigerator instead of the drawer. Firstly, children were asked memory questions such as "Where did Maxi put the chocolate?" and "Where is the chocolate, right now?" Then, children were asked the crucial test question: "Where is Maxi going to look for the chocolate?" Children younger than age 4, usually tell that Maxi is going to look in the refrigerator. This answer is explained by their inability to represent that others might hold different beliefs from reality.

children are questioned both about the reality and the protagonists' mental representation. Generally, it is suggested that at approximately 4-years-of-age[5] children begin to understand the protagonist might hold beliefs, emotions or thoughts that are different from reality or desires that different from their own desires (Perner & Lang, 1999).

Even though beliefs, desires or thoughts are all mental phenomena, they are conceptually different from each other and children gain competence at understanding these different mental phenomena at different times. Generally, it is suggested that understanding desires precedes understanding beliefs which means that children become aware that two people can have different desires, before they become aware that two people can have different beliefs about the same object (Wellman & Liu, 2004). Furthermore, understanding diverse beliefs precedes understanding false beliefs, meaning that children become aware that two people can have different beliefs about the same object or situation before they become aware that one person can have a false belief, when the child holds the correct belief. Lastly, differentiating real and apparent emotions seems like the hardest among all of them, because children become competent at this task only after all the other tasks. However, this sequence of development represents what is generally observed in Western children; however, cultural differences might yield different developmental sequences of ToM development.

The false belief paradigm is the most studied paradigm within the ToM tasks around the world. Children from different cultures, all, gain false belief understanding; yet the age of acquisition ranges between 3, 6 months to 6, 7 years-of-age (Wellman, Fang, Liu, Zhu, & Liu, 2006). Moreover, the sequence of acquisition also varies across cultures. While U.S children first gain competence at understanding diverse desires, children of China acquire knowledge ignorance, first. Studies conducted with Turkish children also presented

[5] In the meantime, research such as Buttelmann, Carpenter and Tomasello (2009)'s has shown that understanding false beliefs develops much earlier than 4-years-of-age. They designed an action based false-belief task which makes use of children's altruistic motivations. In the experiment, 2 and a-half-year-old toddlers observed that an experimenter (E1) put a toy in one of two locked boxes in the room. In the false belief condition, E1 leaves the room. In this time, another experimenter (E2) (who was there when E1 put the toy into the box) takes the toy from the box where E1 had put it and places the toy into the other box with a sneaky attitude. Then, E1 enters the room, again. In the true belief condition, E1 does not leave the room, but watches while E2 is placing the toy into the other box. In the test phase, E1 tries to open the box where he first placed the toy. Results of the study showed that toddlers oriented more towards to current location of the toy in the false belief condition On the other hand, in the true belief condition, they oriented towards the box where E1 had placed the toy, probably holding the belief that "E1 was aware that E2 changed the place of the toy. Therefore, E1 is now trying to open the box A, due to some other reason." These results suggest that 2 and a-half-year-old children can understand that E1 holds a false belief and because of this reason, they act accordingly.

variations. When the performance of all tasks are conflated[6] a significant developmental pattern from 4 to 5 years (Bayramoğlu & Hohenberger, 2007) and 5 to 6 and 7 years-of-age is observed (Özoran, 2009). Moreover, there was a difference in the sequence of acquisition of the various aspects of ToM. Similar to Chinese children knowledge-ignorance is acquired first, which is followed by understanding diverse desire. Interestingly, while understanding hidden emotion is the latest developing ToM ability for English speaking and Chinese children, Turkish children perform better in hidden emotions and master it earlier than understanding false beliefs (Bayramoğlu & Hohenberger, 2007).

Besides the universal acquisition path of ToM ability throughout childhood, studies conducted with children from different cultures reveal the significance of culture and suggest the hypothesis that children's acquisition patterns are influenced by what "seems important" in their cultures. To illustrate, Wellman explains Chinese children's acquisition of knowledge ignorance occurring earlier than that of thoughts and desires through the Chinese culture's emphasis on knowing and on practical knowledge as compared to the Western culture's stronger emphasis on truth, belief and falsity (Wellman et al., 2006, pg.1080). Furthermore, Turkish children's success on understanding hidden emotion might be the consequence of display rules for emotional behavior as a part of higher social demands of courtesy norms (Bayramoğlu & Hohenberger, 2007).

2.4.2. Executive Functioning

Executive function (EF) is conceptualized as interrelated higher-level cognitive processes that are responsible for purposeful, goal-directed problem solving behavior. It is more reasonable to treat it as an umbrella term which encompasses several cognitive processes such as decision-making, goal-selection, initiation of action, mental flexibility, planning, inhibiting competing processes and utilization of feedback that relies on psychological capacities like working memory, anticipatory sets and inhibitory control (Gioia, Isquith, & Guy, 2001). In the simplest scenario, "EFs represent 'top-down' cognitive inputs that facilitate decision making by maintaining information about possible choices in working memory and integrating this knowledge with information about the current context to identify the optimal action for the situation."(Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005).

[6] The tasks were Diverse Desire, Diverse Belief, Knowledge Ignorance, Explicit False Belief, Content False Belief, and Real-Apparent Emotion (Bayramoğlu & Hohenberger, 2007).

It is suggested that executive functioning abilities of young children might be a crucial factor influencing their context-relative responding in normative settings (Rakoczy et al., 2009; Wyman et al., 2009). In experiments on context-relativity, it is a prerequisite for children to mentally represent different contexts to further act in respect to the different requirements of contexts. To illustrate, children have to be able to keep in mind that there are two possible pretense statuses of an object in two different contexts. If, at the same time, representing two possible pretend statuses is cognitively overwhelming for young children, they cannot flexibly make differentiations between contexts. Secondly, as mentioned above, executive functioning is also responsible for inhibition of goal-irrelevant and activation of goal-relevant responses. Therefore, again in the same scenario, young children should be able to inhibit the pretense-status of the *wrong* context and activate the pretense status of the *correct* context.

Certain executive functioning tests are used in the literature. One of them is the Dimensional Change Card Sort (DCCS) test (Frye & Zelazo, 1995; Zelazo, 2006, Perner & Lang, 2002), which is the child version of the Wisconsin Card Sorting Test (WCST) (Grant & Berg, 1948). In the DCCS test, there are picture cards displaying two dimensions: color and shape. At the beginning, children are told to sort cards according to one dimension (e.g. color). After some trials, children are told to sort the cards according to the other dimension (e.g. shape). Research showed that 3-year-olds usually perseverate on the first rule they learned and cannot apply the second rule. However, there is an improvement between 3- and 5-years of age in terms of being flexible and changing the rule when told to do so. The cognitive capacity for a successful performance in DCCS seems very related to the experiments requiring context-relativity since both in the DCCS and experimental games (Rakoczy et al., 2008; Wyman et al., 2009; Engemann, 2010; Tunçgenç, 2012), children have to differentiate between different contexts and inhibit a response in favor of a new one. Engemann's (2010) results showed that there is a negative relationship between performance on DCCS and normative protest in the compatible condition, but not in the incompatible condition suggesting that high scorers of DCCS are more likely to differentiate between contexts and act accordingly.

In addition to DCCS, to measure executive functioning, there are Stroop like tests in the literature. In these tests, children are expected to inhibit an automatic response in favor of a non-automatic response. To illustrate, in the Day/Night task, children are told to say "Day!" when they see a drawing representing night. Similarly, they have to say "Night!" when they see a drawing representing day (Lagattuta, Sayfan, & Monsour, 2011). Since in Stroop like

tasks, subjects have to inhibit an automatic response, the cognitive load of these tasks might be higher than that of DCCS. Yet, studies reveal a developmental increase in performance and children reach almost perfect performance by the age of eight (Lagattuta et al., 2011).

Similar to the Day/Night task, Lagattuta et al. (2011) conducted a Happy/Sad Stroop task in which subjects are presented with drawings of either happy or sad faces and are expected to say the opposite: "happy" to a sad face and "sad" to a happy face. As expected, there is a increase in the performance over development. Interestingly, they found out that the Happy/Sad task is more challenging than the Day/Night task with respect to both number of errors and reaction times[7]. One possible explanation of worse performance in Happy/Sad task is its relation to emotions. The involvement of emotional concepts ("happy-sad") which may be harder to inhibit than neutral concepts ("day-night") might be the reason for the higher difficulty children experience in the former opposed to the latter task. Lagattuta et al. (2011) suggested that there might be possible dissociations between executive functioning of neutral and emotional stimuli. There is literature showing that the presence of emotional/motivational stimuli might influence executive functioning negatively (Hongwanishkul, Happaney, Wendy, Lee, & Zelazo, 2010). Since in our study, we are also interested in emotion and emotion regulation, the Happy/Sad task seems to be a more sensitive task for measuring developmental change in children's executive functions.

2.5. Methodological Issues

2.5.1. Peer Conflict

Conflict is a fundamental part of human life since people usually have contradicting goals and they oppose and resist to achieve their goals towards others. The developmental literature suggested that full-blown conflicts start at the end of the second year of life and they are important for development (Hay & Ross, 1982, as cited in Shantz, 1987). Engemann (2010) suggested certain conditions for a conflict interaction. Firstly, the interactants have to have a compatible background about the controversial issue. Secondly, the interactants both

[7] In their first experiment, Lagattuta et al. (2011) hypothesized that the different performance between the Happy/Sad and Day/Night tasks might be due to inequality in picture details of the cards used. Therefore, they conducted a second experiment in which they kept picture details of cards equal. Yet, this did not influence children's performance in Happy/Sad task which remained worse. Later, it was tested whether this dissociation between tasks performance was due to disparities between word pairs in semantic association strength, since increased semantic associations of the words make the task more difficult (Diamond, Kirkham, & Amso, 2002). However, the semantic association of *day & night* was found to be even higher than the semantic associations of *happy & sad.* Therefore, this hypothesis was not supported either.

have to hold the general belief that "something is not right" about the view of the other. And, thirdly, interactants have to be motivated to "process and resolve" the problem.

Even though conflict might be a fruitful topic for child development, there are only a limited number of studies on this issue. Some observational studies suggested that non-friend preschoolers have 5 to 8 conflicts per hour while friends have 3 conflicts per hour on average. Shantz (1987) suggested that the issues they are conflicting about also show a developmental trend: Possession and use of objects (Brenner & Mueller, 1982; Houseman, 1972, as cited in Shantz, 1987), another child's actions or inactions (Shantz, 1987). In general, while smaller children's conflicts are usually about the control of the physical environment (e.g. use of objects, toys etc), older preschool children conflict more about the control of the social environment (e.g. controlling others etc.). Shantz (1987) suggested that, in addition to control over peers' activities, the social environment includes beliefs, thoughts and ideas and older children argue on mental phenomena, as well. Furthermore, Much and Schweder (1978) stated that violation of norms and rules are also topics of discussion among preschoolers. Observational data suggest that, in conflict about rules, usually one of the partners accuses the other for the transgression and the accused child opposes. Most of the conflicts are about three kinds of rules: (1) regulations (school rules), (2) conventions, (3) moral rules. Moreover, children's arguments within the conflict differ between these types. To illustrate, when school rules were violated, the accused child arguments were usually about the questioning of the logic (function) behind the rules. On the other hand, when children violated a moral rule and accused the other one because of this reason, they were more likely to deny that they committed the behavior or they tried to present their behavior in a different way that is not considered as a violation.

As Hartup (1989) stated, relationships can be divided in two with respect to partners' differences on knowledge and social power. There are vertical relationships in which one of the partners is either (or both) more knowledgeable or have more social power. Therefore, adult-child relationships fall under the category of vertical relationships. On the other hand, there are horizontal relationships in which partners have the same amount of social power, as in peer relationships. The type of the relationship designates the kinds of social exchanges. While vertical relationships provide children "security and protection", horizontal relationships provide contexts where children exert their skills and share knowledge with partners similar to them (Hartup, 1989). Since the social power and knowledge is more similar in horizontal relationships, peer relationships are a good setting for understanding children's normative understanding.

2.5.2. Synopsis of the Present Methodology

The present study aimed to assess both late 3- and 5-year-old children's normative understanding and how normative understanding is related with emotionality in peer relations.

Normative understanding was aimed to be assessed by a peer-conflict paradigm, which was first developed by Hartup, French, Laursen, Johnston, and Ogawa (1993), but later adapted to the capabilities of preschool children by Engemann (2010). In this paradigm, a simple sorting game was used in which there were tokens with two different dimensions. For instance, there are game tokens that are either blue or red balls or cubes. One can play two different sorting games with these tokens: One alternative is to sort the tokens according to the color dimensions (Color Game) and the other alternative is to sort according to the shape dimension (Shape Game). These are two different games and both of them are played according to different rules. Even though these games seem simple, the logical structure satisfies Searle's status functions definitions in the form of "X counts as Y in context C". Sorting according to the color dimension counts as a correct move in the Color Game and putting reds and blues together counts as an incorrect move whereas sorting according to the shape dimension counts as a correct move in the Shape Game while putting balls and cubes together counts as an incorrect move. As it can be seen, the rules of the Shape Game violate the rules of the Color Game and *vice versa*; therefore, the two games are mutually exclusive: One cannot play the Shape Game and the Color Game at the same time.

Engemann suggested that teaching children different rules for playing the specifically named game will create a condition in which children will hold conflicting rules to play the game. To illustrate, when one child is taught that the rule of the Tube Game is to sort according to color and his/her partner is taught that the rule of the Tube Game is to sort according to shape, they will have conflicting representations for the *correct moves of the Tube Game*. It makes this procedure appropriate for studying the appearance of understanding of institutional reality in children. Former studies showed that when an adult does not comply with the rules, children protested against these "incorrect moves." Similarly, in the design of the present experiment, it was expected that when the partner did not play the game "correctly" children would protest against the behavior of their partner. Results are expected to support this hypothesis and children should protest against the partner when she/he violates the rules. In the present study, children's individual protests and pairs conflicts scores were coded separately. Protests were coded by a coding scheme that was developed by Rakoczy et al. (2008) with minor additions. Of course, in this study, there was no

confederate; both of the children in a pair were subjects. Therefore, when Child A protested that Child B as "not playing correctly", Child B can oppose and protest against Child B, as well. These consecutive protests yield conflicts between children. Following Engemann (2010) conflicts were considered as interactions when Child A protests against Child B and Child B protests in response to Child A. This means that conflicts are composed of (at least) two protests each of which is displayed by one of the children with respect to the rules of the game. In the compatible condition, which served as a control condition with respect to the incompatible condition, children were taught both ways of playing and they were instructed to play together without mentioning any of the games. In this case, the experimenter did not set any context, yet children should be aware that there are two contexts and they should choose according to which context they would play. If children are not sensitive to contextual differences, they are likely to protest against their partner's actions even in the compatible condition.

Table 2.2.Schematic display of the structure of the experimental games (e.g. 'Atmaca' Game)(Adapted from Engemann, 2010, pg.27, Table 1.1)

Phase	Incompatible Condition	Compatible Condition
Teaching phase of child 1	1 game with one rule (e.g. 'Atmaca' Game – sorting according to color dimension	Two games with different rules (e.g. Shape Game & Color Game)
Teaching phase of child 2	1 game with one rule (e.g. 'Atmaca' Game – sorting according to shape dimension	Two games with different rules (e.g. Shape Game & Color Game)
Testing phase child 1 & child 2	Children are instructed to play 'Atmaca' Game together	Children are instructed to play together without mentioning any game name

Since one of the aims of the study was to obtain a general idea on how different emotional processes are related with normative understanding, we preferred to make use of various

measures. Firstly, children's emotional reactivity was assessed on-line throughout their interactions. Their emotional reactions were coded on a second-by-second basis by the help of an emotional coding criteria catalogue used by Denham and Couchoud (1990). We want to see whether the *partner's playing incorrectly* in the experimental condition will elicit negative valence emotions (e.g. anger, sadness, frustration). As appraisal theorists suggest goal relevance is a critical variable in the elicitation of emotions. They suggest that emotions are elicited only when something significant happens in terms of one's goals. In the present experiment, we construct a goal for children and instruct them to do "Play together the X Game"[8]. We assume that children also internalize this goal. Therefore, if playing the game correctly bears significance for them, it is likely that this would elicit certain emotional reactions when their partner prevents them from achieving the goal of "playing the X game". Therefore, children's emotional reactions to their partner's "incorrect playing" might be a sign of how much they give importance to the rules. This is one facet of emotionality. Yet, children can also regulate their emotions and especially the goal of maintaining good social relationships might be more important than playing a game according to its rules. If this is the case, we expect children to show less negative valence emotions even in the experimental condition. Some studies in the literature infer emotion regulation abilities from emotional reactions. However, even though one can make certain inferences, displaying less emotional responses does not always mean that emotions are actually regulated. To have an idea of children's emotion regulation abilities, we preferred to add an emotion regulation questionnaire, which is completed by mothers of the participants. The emotion regulation questionnaire –Emotion Regulation Checklist (ERC)- used in the present experiment is a 24-item rated on a 4-point Likert scale developed by Shields and Cicchetti (1997). This scale consists of items measuring the intensity, valence, flexibility, instability and situational appropriateness of emotional expressions. Additionally, temperament is considered as a construct, which might capture both emotional reactivity and self-regulation characteristics of children (Rothbart & Sheese, 2007). For this purpose, a Turkish version of the Children Behavior Questionnaire-Very Short Form (CBQ-VSF) (Rothbart & Putnam, 2006) was completed by mothers.

Executive functioning and Theory of mind understanding are two potential psychological mechanisms that are highly related with children's performance in the experimental games. The Dimensional Change Card Sort task was included due to its procedure's common characteristics with the experimental games. Both experimental games and DCCS necessitate

[8] Only saying "Play the X game" to the children is enough since, due to the game's inherent status function, the X game automatically require children playing according to the rules.

keeping two possible ways of playing in mind, at the same time. Yet, if children are unsuccessful in DCCS, this might suggest that their performance in the experimental games might also be compromised. Furthermore, another executive functioning test was chosen, since Engemann's study suggested that DCCS might not be a very sensitive measure of children's developmental changes in executive functioning. Different versions of Stroop tasks were found to be sensitive measures for capturing developmental changes. This is explained by the requirement of these tasks to inhibit an automatic response in favor of displaying a non-automatic one. Even though, in DCCS, children have to inhibit the pre-switch rule and play according to the post-switch rule, game rules are not considered as automatic responses and their inhibition might be easier than inhibiting automatic responses. Because of these reasons, we decided to add a Stroop test. Yet, children's performance in Happy/Sad Stroop was found to be different from non-emotional Stroop tasks. Since present study concerned with emotional responses, we preferred to use the Happy/Sad Stroop task due to its emotional nature.

False belief understanding is a critical ability for the requirements of the present experiment. If our experimental manipulation works, children will believe that Game A is played according to the X rule. When their partner protested saying Game A was played according to the Y rule, children who understand that others can hold false beliefs about the world might follow different strategies from children who cannot understand that her friend might hold a false belief. For this reason, we used a sample of three theory of mind tasks, selected from the Wellman & Liu (2004) battery. First, we chose the Explicit False Belief task, which aims to measure children's understanding that others might hold false beliefs about the world. Additionally, we hypothesize that understanding others having different desires than oneself is also important, especially in the control condition. This is because there are two possible ways for playing and which one they choose is only dependent on children's preference. If Child A can think that Child B wants to play in a certain way, this is because he has a desire different from Child A's own desire. Understanding others' desires might therefore change children's way of approaching their partner. Lastly, we used a Real-Apparent Emotion task. Studies conducted with Turkish children showed that Turkish children develop the understanding of one person displaying a different emotion even though s/he feels differently earlier than their Western peers (Bayramoglu & Hohenberger, 2009). This might be the result of Turkish culture's emphasis on courtesy and politeness in social relationships. It suggests that Turkish children develop understanding of which emotions should be displayed in which contexts and that one has to regulate the display of one's emotions. This knowledge lies within the emotion knowledge that is a component of

emotional competence, as suggested by Denham et al. (2003). We propose the hypothesis that one's emotion knowledge might be a sign of one's emotional displays, as well. Therefore, we used a Real-Apparent Emotion task in our study as well.

2.6. Hypotheses

Normative Behavior. We expect that 3 year-olds conflict and protests behaviors will not differ between the compatible and incompatible condition. There are contradictory results in the literature with respect to 3-year-olds context-sensitive responding for normativity. Studies following a puppet (played by an adult)-child interaction in rule games (Rakoczy, et al., 2008) and adult-child interactions in pretense games (Tomasello et al., 2009) indicated that 3-year-old children can respond context-sensitively and there was no difference between German and Turkish children's responding (Tunçgenç, 2012). On the other hand, Engemann (2010) did not find out any difference of 3-year-olds between the compatible and incompatible condition in a peer-play paradigm suggesting that 3-year-olds are not competent enough to understand the dependency of normative force on the context. Since the present study follows the same procedure -peer-conflict paradigm- with Engemann (2010), we rather expect emergence of the similar results of Engemann (2010) for 3-year-olds.

5 year-olds will show more protest and conflict actions in the incompatible condition in comparison to the compatible condition. Since in the study of Engemann (2010), 5-year-olds children were able to differentiate between the context and respond according to the normative force (X counts as Y in the context C: e.g. sorting according to color dimension counts as a correct move in Atmaca Game. Therefore, one ought to sort according to color dimension in the context of Atmaca Game but do not have to in a different game.). We expect a similar competence level from the 5-year-olds of the present study.

Emotional and normative behavior of children will be positively related with each other. In particular, children showing more protest and conflict will also display more annoyance and anger. Furthermore, we expect that children will display more annoyance and anger in the incompatible condition than compatible condition. However, we do not have specific hypotheses for the prevalence of other kinds of emotions.

Emotional states. 5-year-olds will display emotional states of annoyance and anger less than 3-year-olds. This is due to our expectation of 5-year-olds would be either less reactive or better regulating their negative emotions than 3-year-olds. Literature suggested there is a developmental progression for both emotion regulation and emotion socialization (Saarni, 1984, Cole et al., 2004, Denham, 2007).

No difference is expected between three year-olds' emotional responses in the compatible condition and incompatible condition. Since we expect that 3-year-olds will not respond context-sensitively and protest and conflict even in the compatible condition, we expected that their emotional states will not differ between the two conditions.

Temperament & Emotion Regulation. We expected that temperamental and emotion regulation characteristics can predict children's normative and emotional responses.

Theory of Mind. 5-year-olds will show better performance than 3-year-olds in all of the theory of mind tasks. Since the studies on ToM development of Turkish children (Özoran, 2009; Bayramoğlu & Hohenberger, 2007) suggested a general development of ToM ability throughout early childhood years. Furthermore, theory of mind development can predict both of the age groups' normative behavior in the incompatible condition.

Executive Functioning. We expect that 5-year-olds will show better performance in comparison to 3-year-olds on both DCCS and ES. Since literature suggest a developmental progression for DCCS (Perner & Lang, 2002, Frye et al., 1995) and ES (Hartup et al., 2011). Furthermore, we expect that high scorers on executive function tasks (DCCS and ES) will be more context-sensitive in the experimental games (protesting in the incompatible condition, not protesting in the compatible condition) than low-scorers on executive function task, as well.

CHAPTER 3

METHOD

3.1. Participants

Participants in this study consisted of 72 late 3- and 5-year-old Turkish children living in Ankara[9]. Children were recruited from 10 private kindergartens attracting families from middle socioeconomic background. Children were grouped into 36 dyads matched by gender and age. One three year-old child could not complete the teaching phase; therefore, the dyad he belonged to was excluded from the study. Moreover, only one instead of both experimental games of three 3-year-old dyads was included to the study. These cases were excluded due to inappropriate environmental conditions during the testing phase. In one single case, one child refused to play the second game because of her peer's *"wrong way of playing."* The final sample consisted of 36 3-year-olds (16 girls, 20 boys; *M* = 47.42 months, SD = 2.15, ranging from 44 to 51 months) and 34 5-year-olds (20 girls, 14 boys; *M* = 71.26 months, SD =2.96 ranging from 66 to 79). All children were native Turkish speakers.

By the help of the kindergarten staff, we delivered questionnaires to the mothers' of the children. However, the return rate was very low. Only 16 of the 3-year-olds' and 16 of the 5 year-olds' Emotion Regulation Checklist and 15 of the 3-year-olds and 13 of the 5-year-olds' Children Behavior Questionnaires were returned. Therefore, the analysis of the questionnaire data is then based upon that partial sample.

3.2. Design

[9] Study was conducted with only the children whose parents consented that their children can participate to the study (See Parent Consent Form, Appendix E).

The main aim of the study was to investigate the development of context-relative understanding of normative rules by the help of rule games and its relation to emotional states of children in a peer-play setting in 3 and 5 year-old preschool children. For this purpose, two sorting games, formerly used by Engemann (2010) were used. The games were simple sorting games; however, the tokens could be sorted in two different ways due to their bi-dimensional characteristics. To illustrate, in one of the games the tokens could be sorted according to either their color (red, blue) or their shape (cubes, balls). In the compatible (control) condition, children were separately taught that there are two ways to play with these tokens such as the "shape game" and the "color game". In the incompatible (experimental) condition, only one way of playing was presented to each of the children in the dyad separately, with a specific game name and it was highlighted that the rule of the game was to play in this way. As a result, the main design of the study was 2 (relationship between rules: compatible & incompatible) X 2 (age group: 3- & 5-year-olds) between subjects design. As there were two different games, games were played in a counterbalanced order. Moreover, in the compatible condition, since every child had learnt two different games in one teaching phase, the order of the two games was also counterbalanced.

There were three central dependent variables. Two of these dependent variables are within the class of normative reactions. These variables were (1) children's individual protest scores and (2) the dyads' conflict interaction scores, and (3) children's individual emotional reactions during the testing phase. After the experimental games had been played, different post-tests were conducted that were considered as possible predictor variables and might explain underlying cognitive capacities of normative and emotional reactions. Firstly, three theory of mind (ToM) tasks (Diverse desire, Explicit false belief, Apparent-reality emotion) were conducted since ToM performance might be related with both developmental and individual differences of children's context-relative understanding of normative rules in games. Secondly, two executive functioning tests, namely the emotional (happy-sad) Stroop task and a card sorting task were conducted. Even though cognitive demands of the experimental games were not very high for 5 year-olds, understanding and applying the rule(s) they had learned earlier might be challenging for 3-year-olds. Therefore, executive functioning abilities might be another predictor variable, which influences children's performance on experimental sorting games. All these 3 tests were conducted after the experimental games. To control possible order effects, the order of the tests was counterbalanced.

Finally, we assumed that emotion regulation abilities and temperament characteristics of children might be related with children's normative and emotional reactions. These constructs were measured by questionnaires completed by participants' mothers. Mothers completed the Very Short Form of the Children Behavior Questionnaire (Rothbart & Putnam, 2006) and the Emotion Regulation Checklist (Shields & Cicchetti, 1997). However, as already mentioned, the return rate of these questionnaires was very low. As a result, we did not consider the information collected from these questionnaires as a part of the main analysis, but we used them to gain insights about possible relations between emotion regulation, temperament and normative, emotional reactions.

3.3. Materials and Procedure

3.3.1. General Procedure[10]

All observations were carried out in separate calm rooms of kindergartens and recorded by a secret video camera so that children were not aware that they were videotaped.[11] Since the experimental games should be taught individually to each child, two experimenters were involved in the procedure so that while one of the experimenters (E1) was teaching the games to one child, the other experimenter (E2) played with the other child in another room. Children were taken as dyads and the duration of a session for one dyad was approximately 40 minutes. Dyads were taken from the same class so that children had known and been playing with each other at least for a month. Nursery teachers were asked to select two children matched on gender and age. One session for a dyad consisted of a warm-up phase, two experimental games and three post-tests. At the beginning of a session, children were taken from their classes. The experimenters introduced themselves and asked the children whether they would like to play games with them. If children agree to play, they were taken to the experiment room. The dyad and the experimenters played a warm-up game together. The game was a pairing game in which there were animals and 'houses' of these animals. The goal of the game was to pair animals with their proper 'houses' (For the materials used in of warm-up game, see Figure A.4., Appendix A). This game was included in the procedure to ensure that children got used to the experimenters before the experimental games started. The warm-up game was followed by the two experimental games. Experimental games consisted of individual teaching phases for each child and a testing phase in which the dyad played the game together. In the teaching phase, E1 stayed in the room with one of the children (child A) and E2 brought the other child (child B) to another

[10] The present study had been accepted by Ethics Committee of Middle East Technical University.
[11] Two 5-year-old children noticed the video camera.

room. E1 taught the game to child A and then experimenters exchanged the children and E1 taught the game to child B while E2 and child A were playing outside[12]. After both of the children had been taught the games, they were taken to the experiment room and asked to play together while both of the experimenters were waiting outside. The same procedure was repeated for the second game. Children's order of teaching phases and order of experimental games were counterbalanced. Finally, the two experimental games was followed by the three post-tests in which each experimenter took one of the children and conducted the card sorting test, three Theory of Mind tasks and the emotional (happy-sad) Stroop task in a counterbalanced order in separate calm rooms.

3.3.2. Experimental Games

Apparatus

There were two experimental games developed by Engemann (2010) relying on the same logic. In one of the games, there were either red or blue cubes or balls[13]. Children were instructed to sort these tokens into two transparent plastic tubes that were mounted on a portable platform. In the incompatible condition, the game played with these tokens was named neutrally 'Atmaca' (can be roughly translated to English as 'Throwing') Game. In the compatible condition, games were named 'Color' Game and 'Shape' Game, respectively.

The second experimental game consisted of tokens that were 12 wooden rectangular prisms either a green or yellow bird or a green or yellow dog drawn on one side[14]. Children were instructed to sort the tokens by placing them into two boards each of which had 6 holes in it. In the incompatible condition, this game was named neutrally 'Dizmece' (can be roughly translated to English as 'Arraying') Game while the names 'Color' Game and 'Animal' Game were used in the compatible condition, respectively.

To ensure that children took the tokens one at a time, a rechargeable dispenser called "Kaydırak" (Slide) was used. It was an 8 cm diameter wide tube which was mounted on a platform with a slope of 35-degree so that when a token is thrown from the upper end of the tube, it slides through to the bottom end where it emerges. For both of the games, all the game tokens were thrown into the dispenser before the game began. When a token was taken from the bottom end, new tokens automatically fell to the bottom end. (For the stimulus materials of the two games and the dispenser, see Appendix A.)

[12] E2 played the rest of the warm-up game with the children.
[13] 3 red cubes, 3 red balls, 3 blue cubes, 3 blue balls
[14] 3 green birds, 3 green dogs, 3 yellow birds, 3 yellow dogs.

Individual Teaching Phase

In both conditions, the game tokens were introduced to the children. E1 told child A that she was going to teach a game(s), but before passing to the game the child had to answer some questions about the characteristics of the tokens. E1 asked about the colors and shapes of each token to ensure that the child was aware of the different characteristics of the tokens. If children had difficulties in answering, E1 helped them to answer and made sure that they understood the different characteristics.[15] Then, E1 told that they had to fill the dispenser first, before starting the game. E1 gave each token to the participant according to a fixed order and the participant threw the tokens into the dispenser. After all of the tokens had been placed in the dispenser, E1 stressed that they were starting playing the game(s) right now. The general procedure was as follows: First two tokens were taken and the sorting game was played by the E1 for teaching purposes. To illustrate, E1 took one of the tokens and said "Look, this is red. Therefore, we should put this here." and put the token where it belonged. After the first two tokens had been placed, participants were asked to continue the game themselves. E1 always gave feedback. Correct classifications were confirmed (e.g. "Yes, you did it right."), whereas wrong classifications were corrected (e.g. "Look again, should we put this here?"). If participants did not understand the games in the first round, the games were played again. If participants did not understand them even after the third round, the session with that participant was canceled.[16]

In the compatible condition, participants were told that "We can play with these tokens in two ways and I am going to show you, now, how to play these games. First, let's start with the Color Game. In the Color Game, we look at the color of this. If it is red, we put it here; if it is blue we put it there." (E1 points to the tokens at the same time). After E1 and the participant had played the first type of game, E1 told the participant that "We played the Color Game, but there is another way to play with these toys. Now, I am going to show you the other way of playing. In this game, we look at the shapes of these toys. If it is a cube, we put it here; if it is a ball we put it there." When both of the games had been played, E1 asked "We can play with these toys in two ways, can't we?, What were the names of the games?_____(Child answers.) In the Color Game, we put _____?" (Child answers.) "… and in the Shape Game, we put _____? (Child answers.) When participants

[15] Many of the children said "Kare" (Square) for cubes and "Yuvarlak" (Round) for balls. Their answers were not corrected and the experimenter used "Kare" and "Yuvarlak" instead of *Cube* and *Ball* with these children.

[16] All of the children learned the games in the first round except one child. A three-year-old child could not learn the game even in the second round. Therefore, his session was canceled.

hesitated or could not answer, the experimenter helped them to finish the sentences. Game orders were counterbalanced.

In the incompatible condition, participants were told that "I am going to teach you to play a game. Its name is 'Atmaca' Game. What is its name? _____ (Child answers.) Yes, its name is Atmaca Game and there is a rule to play the Atmaca Game. In the Atmaca Game, we always put the red ones here and the blue ones there. (Pointing the relevant parts of the apparatus). This is how the 'Atmaca' Game is played. The 'Atmaca' Game goes like this. We cannot play 'Atmaca' Game in another way. Ok? _____ "(Child answers.) While the participant was playing, the experimenter always stressed the name of the game and how the game should be played. When all the tokens were placed where they belonged, E1 asked the participant "What is the name of this game? _____(Child answers.) … and what is the rule of playing the Atmaca Game? _____(Child answers.)". When participants hesitated or could not answer, the experimenter helped them.

Testing Phase

The dyads were brought to the experiment room. In the compatible condition, E1 said that "I taught both of you two games. Play together right now" and in the incompatible condition "I taught both of you to play the Atmaca Game. Play the Atmaca Game together." In both of the conditions, E1 said "I will wait outside, don't start the game before I leave the room and call me when you finished." and E1 left the room. When children called the experimenter to complain about the other child's way of playing, E1 made some affirmations like "I taught both of you to play this game. You are doing well. Continue, ok?" If the dyad did not stop arguing more than 2 minutes, E1 canceled the game.[17] When participants finished the game, they called the experimenter. The experimenter waited for a while to listen to the participants' comments on the play session. When they finished commenting, E1 asked the children to continue with another game.

3.3.3. Post-experimental Tasks

Post-tests consisted of (1) three theory of mind tasks, which were Diverse Desire, Explicit False Belief and Appearance-Reality Emotion and two executive functioning tests, namely (2) the emotional (happy-sad) Stroop task and (3) the dimensional change card sort task. Each experimenter took a child and conducted the post-tasks in separate rooms after the

[17] Only one of the 3-year-old pair's interaction was canceled by the experimenter due to their continuing arguments and complaints.

experimental games. Experimenters and children sat side-by-side at a table and tokens were displayed on the table. Children could reach the tokens comfortably when they were seated.

3.3.3.1. Theory of Mind

Apparatus

Three theory of mind tasks which were Diverse Desire, Explicit False Belief and Appearance-Reality Emotion were used. These tasks are a part of the Theory-of-Mind Scale developed by Wellman and Liu (2004) and were translated to Turkish by Bayramoğlu (2007). The same scale was formerly used by Özoran (2009) to study the relationship between evidentiality and theory-of-mind understanding. In this study it was shown that Turkish children ranging from 4 to 7 years of age performed significantly better when the stories were told by using the evidentiality marker –DI (past direct evidence) in comparison to –MIŞ (past indirect evidence) and present tense. Therefore, the –DI versions of all stories were used in the present study. For all three theory-of-mind tasks, drawings of protagonists and objects mentioned in the stories were used to increase children's understanding of stories (For details of the theory-of-mind tasks see: for stimulus: Appendix A; for stories: Appendix D). These three tasks were always conducted in the order of Diverse Desire, Explicit False Belief and Appearance-reality emotion.

Procedure

The experimenter told the child that she was going to tell stories and ask some questions about those stories. Before every task, the experimenter introduced the protagonist in the story and drawings of objects relevant to the story. Then, the experimenter told each task's story and asked questions assessing the theory of mind understanding for each task.

3.3.3.2. Dimensional Change Card Sort

Apparatus

Materials were similar to the Standard Dimensional Change Card Sort task, which was developed by Frye, Zelazo and Palfai (1995). Children were instructed to classify cards according to different dimensions. For this purpose, 2 containers and 14 laminated cards were used. Cards were 10.5x 7.5 cm depicting either blue or red car or plane drawings on them. 4 of the cards were for the teaching phase (1 red car, 1 red plane, 1 blue plane, 1 blue car) and 10 of the cards were for testing. 5 of these 10 cards were used in the pre-switch phase and 5 of them were for the post-switch phase. Instead of open trays that were used in

the Standard procedure carton boxes which were 14 cm deep, 13 cm long and 8 cm wide with slots cut out of the lids and mounted on a portable platform were used so that children could not take already sorted cards (Perner & Lang, 2002). A card with a drawing of a blue car on it was attached to one of the boxes and a card drawing of a red plane was attached to the other. (For materials, see Table A.5., Appendix A.)

Procedure

The standard procedure of the Dimensional Change Card Sort task developed by Frye, Zelazo and Palfai (1995) was followed. At the beginning of this task, participants were asked about the relevant dimensions of the cards to ensure that they were aware of the different dimensions of the drawings depicted on the cards. Then, the experimenter told that they will play the Color Game and taught the participant how to play the Color Game: "Now, we are going to play the Color Game. In this game, all blue ones go here and all red ones go here. Do you understand? The Color Game is played in this way." The 4 teaching cards were presented to the child and classified by the experimenter while telling how to play the game. Then, the experimenter asked confirmation questions such as "Where should we put the red ones?, Where should we put the blue ones?" (Perner & Lang, 2002)

In the pre-switch trials, participants were given 5 cards one-by-one and given feedback after their every move. If they classified the tokens correctly, the experimenter reinforced them saying "Yes, this is right, you are playing the color game correctly." If they made mistakes, they were corrected "Do we put red ones there? We should put red ones here."

After the child had sorted all pre-switch cards, the experimenter changed the rule and said, "Now, we are playing a new game, the Shape Game. The Shape Game is different. This time all cars go here (point the box having a car drawing on it) and all planes go here (point the box having a drawing on it.) Again the children were asked, "Where do cars go?" and "Where do planes go?" If children gave wrong answers they were corrected till they gave correct answers. Then, participants were given the 5 remaining cards one-by-one and they sorted the cards. In the post-switch phase no feedback was given to participants.

3.3.3.3. Emotional (Happy-Sad) Stroop Task

Apparatus

The task included 8 cm x 8 cm laminated cards depicting 12 happy and 12 sad face drawings. 4 cards were used for the teaching phase (2 happy, 2 sad) and 20 cards were used for the testing phase. There was a fixed order of the 20 test cards which was determined

randomly and the cards were always presented in this order (For depictions of cards see Table A.6., Appendix A.)

Procedure

The procedure was the same as in Lagatutta, Sayfan and Monsour's happy-sad Stroop task (2011). Participants were told "Here is a picture of a face. Is it happy or sad? (waiting for the participants response) Yes, happy. Here is a picture of another face. Is it happy or sad? Right, sad. Now, we are going to play an opposite game. When I show you a picture of a happy face, I want you to say SAD and when I show you a picture of a sad face, I want you to say HAPPY. So, let's say the rules again. When I show you a happy face, you say _____ (child responds), and when I show you a sad face, you say _____ (child responds).Ok, let's practice." The practice phase consisted of 4 cards. If the participant made any mistakes, she was corrected. Practice trials continued until participants consecutively gave 4 correct answers. If participants could not give 4 consecutive correct answers in 4 rounds, the task was not conducted. When the teaching phase was completed, the experimenter said "Now, let's start playing." and showed the remaining 20 cards one-by-one. The number of wrong answers was noted and the number of correct answers was taken as the final score.

3.4. Observational and Coding Procedure

All experimental sessions were recorded by a video camera. Testing phases of both of the experimental games were cut from the whole session's video. Children's normative and emotional responses were coded separately. One single observer coded all of the videos and a second observer coded 20% of the videos. A video-coding software named INTERACT 8 was used for the coding procedure (Mangold, 2007). Normative response coding consisted of both individual normative protests and dyads' conflicts. Due to the experimental manipulation, all dyads experienced some conflict. Therefore, there were 35 conflict scores (for the n=35 dyads) in comparison to 70 individual protest scores (for the n=70 subjects).

3.4.1. Normative Actions

Normative actions consist of both individual protests and dyads' conflicts. In addition to the previous calculation method, children's persistence on the protest and conflict was also a research question. For this reason, the number of participants' protest and conflict actions was also coded.

3.4.1.1. Protest Actions

A normative coding scheme developed by Rakoczy et al. (2008) was adapted according to the requirements of the present study's design. The original coding scheme consisted of four hierarchical categories that were (from highest to lowest) (1) clear normative protest, (2) imperative protest, (3) simple opposition and (4) hints of protest. The category of clear normative protest comprised behaviors such as criticizing, correcting the other's behavior or teaching the appropriate behavior. To be coded as clear normative protest, the children's utterances should express obvious normative content. To illustrate: "Yanlış yapıyorsun." (You are doing it wrong.), "Mavileri buraya koymalısın." (You should put blue ones here.), "Kırmızılar buraya, maviler buraya." (Red ones go here, blue ones go here.)" are typical examples of clear normative protest. Furthermore, an utterance was coded as imperative protest when the child uttered a sentence to force the other child to act according to the rule she adopted. Therefore, this category comprised imperative utterances like "Yeşilleri buraya koy." (Put the green ones here.), "Kırmızıları oraya koyma." (Don't put red ones there.). Additionally, questions such as "Böyle olur mu?" (But does it work in this way?), were coded as imperative protest actions.[18]

Simple oppositions such as "Hayır. (No.), I-ıı." that were not full sentences but expressed opposition were coded as simple opposition. Moreover, utterances like "Ama o kuş." (But, this is a bird), "O köpek" (This is a dog.) were also coded as simple opposition because they lacked required normative content to be coded as normative or imperative protest; yet it was clear that the child's intention was to oppose to the other child's rule.

Children's behaviors were coded as hints of protest if a child had a clear intention to protest but did not vocalize (e.g. reversing other's action, preventing the other from her obviously 'wrong' action). As mentioned above these categories were taken from Rakoczy et al.'s (2008) coding scheme. However, the design of the present study relied on peer interaction and pre-observations of interactions necessitated additional categories. Firstly, children sometimes uttered sentences in which they referred to the source of the rule and to the rule-giver (in this case, to the experimenter). To illustrate, they said "Öğretmen öyle dedi." (The teacher said this way.) or "Öğretmenle böyle oynadık" (We played with the teacher in this way)". These kinds of sentences were coded as "Reference to the Rule Source". Secondly, children uttered declarative sentences in which they expressed their way of playing the game

[18] Children usually started interactions by saying "Kırmızılar buraya, maviler buraya." (Red ones go here, blue ones go here.), or "Kırmızılar benim, maviler senin" (Red ones are mine, blue ones are yours). However, most of the time, it was clear that children uttered these sentences to declare the rules of the game without the intention of protesting. Rather, they would like to start a conversation by expressing the rules of the game. Therefore, the first sentences that lacked any intention of protesting were not counted as protest actions.

without referring to the power of the normative content. If their utterance was in accordance with the rules they had learned, this sentences were coded as declarative protests, e.g. "Ben kırmızıları buraya koyacağım." (I am going to put the red ones here). Adding these two additional categories, there were six protest categories in total in the present study.[19]

Calculation of Protest Scores

We calculated two different protest scores. One of the aims of this experiment was to assess whether 3- and 5-year-old children were competent enough to display normative protests and conflicts. Therefore, we followed Engemann's (2010) coding method which relies on the logic that one single display of a protest action was enough to express children's competence for normative protesting (Throughout the paper, this type of protesting will be called as C-Protest.). For this reason, in calculating C-Protest scores, only one single display of a protest action was enough for a child to get C-Protest score. In other words, there is no difference between 1 single protest and 10 protest actions in this coding system. In this calculation method, categories were hierarchical classes and participants got a score for their action that corresponds to the highest category in the hierarchy. To illustrate, if a child displayed both imperative protest and hints of protest, this child got the code of imperative protest since it is higher in the hierarchy compared to hints of protest. The logic behind this coding system is that higher classes in the hierarchy require more cognitive capacities. If the same child had also displayed clear normative protest, she would have taken the clear normative protest score since it was assumed that if a child is able to display clear normative protest, she could also have the capacity to display imperative or any other type of protest that are lower in the hierarchy in comparison to clear normative protest. Additionally, children's persistence of protesting was also a research question of this study. We did not consider categories as hierarchical classes in this case; rather all protest actions were counted equally. Frequencies of all protest actions were summed and children's frequency of normative protest score (called F-Protest score) was the total number of all kinds of protest actions. [20] (For the details of the coding scheme, see Appendix F)

[19] It should be noted these sentences were coded as a protest when it was clear that the children were opposing to the other's rule. Sometimes children uttered similar sentences without the intention of protesting in terms of the game's rules. In these cases, sentences were not counted as protests.

Another rater coded 20% of the videos and inter-rater reliability was calculated for F-Protest scores. Since the scores were continuous, we calculated interclass correlation coefficient, which was .88.

3.4.1.2. Conflict Interactions

Following the same logic of Engemann (2010), it was assumed that "…as soon as one child's initial protest was followed by a protest of the partner and it seemed clear that the second protest referred to the same topic as the first protest did, a conflict was coded for the dyad." (pg.37).

Calculation of Conflict Scores

Similar to the protests, there were two different conflict scores for every dyad. Firstly, if a dyad displayed at least one conflict action, they got a conflict score of 1 for competence for conflict (C-Conflict) since one conflict interaction was sufficient for obtaining the conflict score in this score calculation. However, the type of conflict was dependent on different combinations of protests and there were 6 categories of protesting. As a result, an excessive number of conflict types emerged. Pre-observations suggested that this kind of a detailed analysis would not yield meaningful results. Therefore, we coded only three different types of conflict that were pure normative, pure imperative and the all other conflict types were coded as 'other'. The logic behind this preference was that normative and imperative conflicts were observed more often in comparison to other types of conflicts and differentiating these conflict types from the others might yield significant outcomes. Furthermore, this coding system warranted the comparison of the results of the two studies. Normative conflict was coded when both of the protests were clearly normative. Imperative conflict was coded when both of the protests were imperative. Finally, all other combinations of conflicts were coded as mixed conflict.

Children's persistence of conflicts was also an important research question. Therefore, similar to the protests, we calculated the total number of conflict interactions, which presented frequency of, conflicts (F-Conflict score). However, it was more problematic to code conflicts in comparison to protests since it is hard to draw the boundaries of a single conflict interaction. Engemann's (2010) operational definition of conflict interaction was helpful at this point. If child A's protest was followed by a protest from child B with the intention to oppose to the protest of child A, we coded this as a single conflict interaction. If child A displayed another protest action referring to Child B's protest, we coded this interaction as another conflict. Thus, there could be two conflicts but only three protests. In

this coding system, we consider every turn taking as one unit; however, we do not consider the kinds of protests within these units. To illustrate, child A might display both normative and hints of protest in reply to the protest of child B. In this case, two different types of protest in one turn was not treated differently from any other combination of protests since, in this type of conflict coding, we are only interested in the frequency of children's conflict interactions and not in any details of individual types of protest actions. Another rater coded 20% of the videos for the conflicts and interclass correlation was .99, which can be considered as perfect agreement between two raters.

3.4.2. Emotional Coding

Conceptualizing a reliable and contextually valid emotional coding scheme is a challenging task. This has been an important issue in emotion research and also the reason why emotion had been avoided for a long time as a scientific research topic. In this study, we were also interested in behavioral displays of emotional reactions. In the emotion literature, facial expressions and emotional vocalizations are the two main behavioral emotion displays that have been studied (Grolnick, Bridges, & Connell, 1996; Denham, Mitchell-Copeland, Strandberg, Auerbach & Blair, 1997; Hubbard, 2001; Hubbard et al., 2002). Well-validated, fine-grained emotion expression coding systems are available in the literature such as the Emotional Facial Expression System (Friesen & Ekman, 1984). However, as mentioned by Hubbard (2001), there are several disadvantages of using these systems. Firstly, close camera angles are required for the systems which cannot be achieved in studies where subjects should not notice that they are recorded. Secondly, these coding systems were developed only for facial expression; yet, verbal vocalizations are also substantial for the interests of the present experiment. Thirdly, these fine-grained coding systems necessitate expensive equipment and experience of working with these equipments. Furthermore, these systems might be more micro-analytic and not necessary for experiments of this type (Camras, 1988).

For these reasons, we adopted a simpler coding scheme developed by Denham (1986). Six of the expressions of the coding scheme, namely happy, sad, annoyed/angry, tense and neutral were appropriate for the specific interest of the present study. Moreover, pre-observations revealed that "surprise", "worry" and "puzzlement" were frequently present in the interactions also. Operational definitions of worry and tenseness are highly overlapping and differentiating these two expressions had been very hard during observation; therefore, they were collapsed. In sum, seven emotions were coded: happy, sad, annoyed/angry, tense/worried, surprised, puzzled, and neutral. Instances that did not belong to these seven

emotional expressions were coded as "other". Children's facial and verbal expressions were coded in combination (For the coding scheme, see Appendix G).

Calculation of Emotional Response Scores

Videos were divided into one-second intervals and children's facial expressions were coded on a second-by-second basis; either as happy, sad, annoyed/angry, tense/worried, surprised, puzzled, neutral or other. If a child's emotional response changed within a one-second interval, the child obtained the emotional score corresponding to his/her last display of emotion. The duration of the game sessions varied considerably. As a result, the duration of interaction was different for every child. In order to have scores that are independent of the total duration of the game, we normalized scores of the children with respect to the durations of the interactions. Since there were two experimental games, every child had two scores for each type of emotional code. Firstly, we calculated a normalized score for each subject's score for the two games separately[21]. The calculation was done by multiplying the frequency of emotional codes with the mean duration of the game that the code belonged to and dividing the result by the actual duration of the game for a specific subject. To illustrate, think of a case in which it took 60 seconds for a child to play the 'Atmaca' Game and at 10 seconds of the game, the child was coded as 'happy'. For all the subjects, mean duration of the 'Atmaca' Game was 50 seconds. A specific subjects normalized 'happy' score was calculated by multiplying child's happy score (10) with mean duration of all interactions for 'Atmaca' Game (60 seconds) and dividing the result to the actual duration of the 'Atmaca' Game for the subject (50 seconds). The same calculation was also conducted with 'Dizmece' Game. As a result, we had two normalized scores for an emotion derived from the two games. Yet, we needed to have final score, which represented a subject's scores from the two games. However, one had to be careful, since the mean durations of the two games was different. For this reason, we used a mean calculation method in which we also considered mean durations of the each game. The scores of the each game was multiplied by the mean duration of that game. Then, the results were summed and, later, divided by the sum of game durations [22] As a result, every participant had a final score for eight types of individual emotional expression scores that were normalized according to the game durations.

[21] Score of a specific subject for one game = (Certain emotion score of the subject in that game*Mean duration of that game)/Actual duration of that game for that specific participant

[22] Final score of a subject = (Score of Dizmece Game*Mean Duration of Dizmece Game)+(Score of Atmaca Game* Mean Duration of Atmaca Game)/(Mean Duration of Atmaca Game + Mean Duration of Dizmece Game)

20% of the videos coded by a second rater. At first, we calculated separate inter-rater reliability analyses for each emotional state. Interclass correlation coefficient values for frequently observed emotional states was good, namely, 'happy' (.85), 'annoyed/angry' (.78), 'neutral' (.85). On the other hand, frequency of the remaining emotions was too low. Since many of the subjects' scores were 0, calculating interrater reliability (due to the interclass correlation coefficient calculation method) was not meaningful.

3.3.4. Parent Questionnaires

We distributed two questionnaires –Emotion Regulation Checklist and Children Behavior Questionnaire- to the mothers of the participants. However, the return rate of the questionnaires was very low. Only 16 of the 3-year-olds' and 16 of the 5 year-olds' Emotion Regulation Checklist and 15 of the 3-year-olds and 13 of the 5-year-olds' Children Behavior Questionnaires were returned.

3.3.4.1. Emotion Regulation Checklist

Emotion Regulation Checklist is a measure developed by Cicchetti and Shields (1997) in order to measure children's emotionality and emotion regulation characteristics, in particular, children's characteristics of affective lability, intensity, valence and contextual appropriateness of emotional expressions. Turkish version of the questionnaire was translated by Batum and Yağmurlu (2007) (See Appendix I for the Turkish version). The questionnaire consists of 24 four-point Likert-scale questions (One = Never … Four = Always) scored both positively and negatively. The questionnaire consists of two subscales that are Lability/Negativity and Emotion Regulation. Lability/Negativity subscale consisted of items related to anger dysregulation, mood lability, and lack of flexibility, whereas the subscale of Emotion Regulation consisted of items tapping contextual appropriateness of emotional expressions and empathy. Both of these factors are measured by separate 12 questions.

3.3.4.2. Children Behavior Questionnaire

The Standard version of Children Behavior Questionnaire was developed by Rothbart, Ahadi, Hershey and Fisher (2001) in order to measure temperamental characteristics of children. The questionnaire relies on the Temperament System Framework suggested by Rothbart (1989d) and it includes 196 seven-point Likert-scale questions. Yet, in the present study, we used Very Short Version of the questionnaire (VSF-CBQ) (Putnam & Rothbart, 2006). VSF-CBQ consists of 36 questions of the Standard CBQ that were found to be the

most representatives of the characteristics that CBQ measures. In the present study, we used the Turkish version translated by Akın Sarı, İşeri, Yalçın, Akın Aslan, Şener (2012) (See Appendix J for the Turkish version).

CBQ consists of three subscales that are (1) Surgency/Extraversion, (2) Negative Affectivity and (3) Effortful Control. Subscales of Surgency/Extraversion and Negative Affectivity measure reactivity levels, whereas the subscale Effortful control measures self-regulation abilities (Rothbart et al., 2001).

CHAPTER 4

RESULTS

4.1. Protest Actions

There were 6 types of protest, namely (1) referring to the rule source, (2) normative protest, (3) imperative protest, (4) declarative protest, (5) simple opposition, and (6) hints of protest. (for examples of these protest types, see the coding sheet in Appendix F). The two most frequent protest types were normative protest and hints of protests. Normative protests constituted 38% and hints of protests constituted 33% of the all protests. Furthermore, 15% of the protests were simple opposition, 6% of the protests were imperative, 5% of the protests were normative declaration and, finally, 4% of the protests were referring to the rule source (See Table H.1., Appendix H for the descriptive statistics of types of F-Protests.). Furthermore, we investigated types of protests by the help of hierarchical types of C-Protest scores, where "C" means "competence". Children's hierarchically highest type of protest was considered the C-Protest type for that specific child. This kind of scoring relies on the assumption that the highest type of protest in the hierarchy displayed by the child means that the child is competent enough to display that type of protest and the all other types of protests that are lower in the hierarchy. In this score not the number of protests but presence of the type of protest over the two games is assessed. Referring to the source of the rule was the highest protest type in the hierarchy because it implied a meta-cognitive awareness of the norm-giver as the source of the conflicting rules, here, the experimenter. Analysis revealed that 3% of the children displayed at least one protest in which they referred to the source of the rule. The second highest code in the hierarchy was normative protests and 56% of the children displayed at least one normative protest, whereas 4% of the children did not

displayed normative protest but displayed imperative protest. Declarative protest, simple opposition and hints of protests constituted the 9% of the protests (See Figure 4.1).

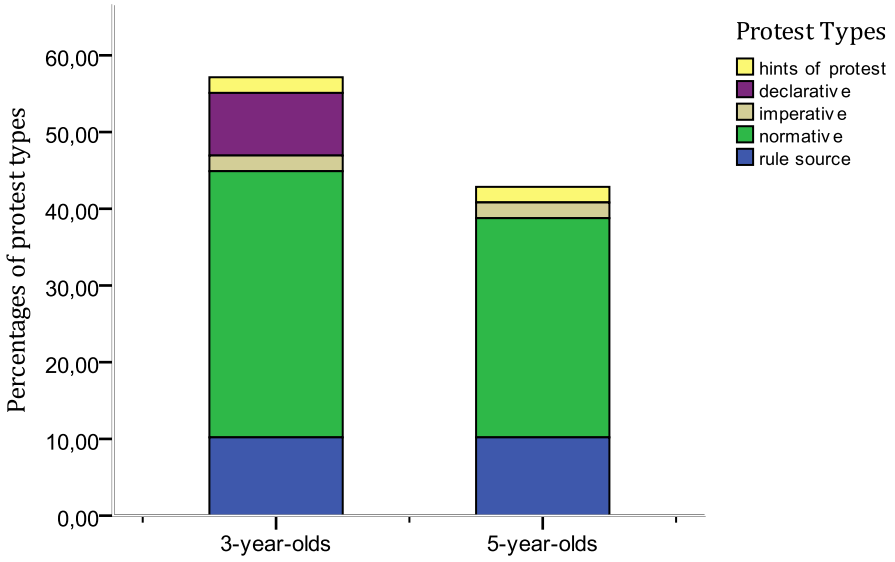

Figure 4.1. Percentages of hierarchical C-Protest types for 3- and 5-year olds

Every child had two different protest scores[23]. The first type of scores represented children's competence for protesting (C-Protest). This score ranged between 0 and 1. If a child displayed at least one protest action in a game, she/he got the score of 1. If she/he did not display any protest action, she/he got the score of 0. Later, children's scores of the two games were conflated by summing the scores of the two games and dividing it with number of games. As a result, every child had a final score for the two games (See Table H.2, Appendix H for descriptive statistics.) Taking these scores as a dependent variable, 2 (relationship between rules: compatible & incompatible) x 2 (age: 3-year-olds & 5-year-olds) between subjects ANOVA was conducted. Analysis revealed a significant main effect of age, $F(1, 66) = 7.656$, $p < .05$, $\eta_p^2 = .104$; and a main effect of relationship between rules, $F(1,66) = 60.393$, $p < .001$, $\eta_p^2 = .478$. However, the interaction between rules and age was not significant, $F(1,66) = .005$, *ns*.

[23] We coded protests by specifying which protest type they tapped (See the coding scheme in Appendix F) However; we did not take protest types into consideration when we were calculating F-Protest scores. We just took the sum of all types of protests and the result was the final F-Protest score.

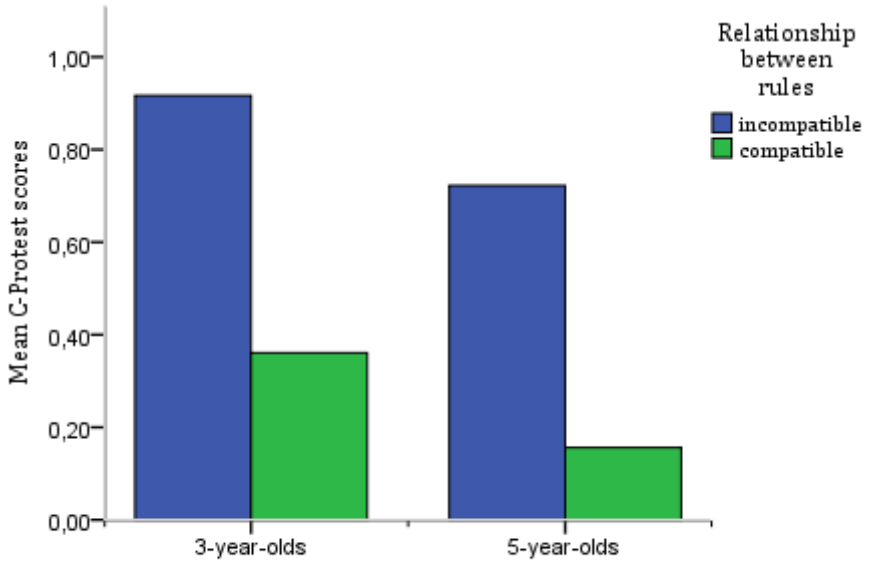

Figure 4.2. : Competence-for-Protesting scores of 3- and 5-year-olds between the compatible and incompatible condition

Pairwise comparisons for age revealed differences for both 3-year-olds ($F(1,66) = 30.564$, $p < .001$, $\eta_p^2 = .317$) and 5-year-olds ($F(1,66)=29.855$, $p < .001$, $\eta_p^2= .311$) between compatible and incompatible condition. 3-year-olds protested significantly more in the incompatible (M = .92, SE = .07) as compared to the compatible condition (M = .36, SE = .07) and so did 5-year-olds (incompatible: M = .72, SE = .07; compatible: M = .16, SE = .08. Moreover, both in the compatible and incompatible condition, there was a marginally significant difference between 3- and 5-year-olds. The difference between 3- and 5-year-olds, in the incompatible condition (3-year-olds: M = .92, SE = .07; 5-year-olds: M = .72, SE = .07) marginally significant at $p \leq .057$, $F(1,66) = 3.744$, $\eta_p^2= .054$, and in the compatible condition (3-year-olds: M= .36, SE= .07; 5-year-olds: M= .16, SE= .08), it was marginally significant at $p \leq .052$, $F(1,66)= 3.912$, $\eta_p^2= .056$.

One important point, however, was that our sample violated the assumptions of ANOVA. C-Protest scores were not normally distributed, $D(70) = .259$, $p < .001$, and the assumption of homogeneity of variances across groups were violated for the levels of the variable Relationship between Rules, $F(1, 68) =4.533$, $p < .05$[24]. ANOVA is considered as a 'robust' test yielding accurate results even though its assumptions are violated (Field, 2009)[25]. Yet, we also conducted non-parametric tests to investigate whether the effect we found in ANOVA analysis would be present in an analysis that does not necessitate normal

[24] In the present paper, normality of the distribution of the data was tested by Kolmogorov-Smirnov test and homogeneity of variances across groups was tested by Levene's test.
[25] See Field (2009) for further discussion.

distribution of the data or homogeneity of variances across groups. For this reason, we conducted the non-parametric Mann-Whitney test. Firstly, Mann-Whitney test comparisons of 3-year-olds' C- Protests scores across compatible and incompatible condition revealed that 3-year-olds significantly protested more in the incompatible condition (*Mdn* = 1) compared to the compatible condition (*Mdn* = .50), *U* = 42.000, *z* = -4.134, *p* < .001, *r* = -.69[26]. Similarly, 5- year-olds protested more in the incompatible condition (*Mdn* = .75) in comparison to the compatible condition (*Mdn* = 0), *U* = 34.500, *z* = -4.015, *p* < .001, *r* = -.69. Furthermore, we compared 3- and 5-year-olds' C- Protest scores across the compatible and incompatible condition. In the incompatible condition, 3-year-olds (*Mdn* = 1) protested significantly more than 5-year-olds (*Mdn* = .75), U = 106.500, z = -2.136, p < .05, r = -36. Yet, in the compatible condition, the difference between 3- (*Mdn* = .50) and 5-year-olds' (*Mdn* = 0) was only marginally significant, *U* = 99.000, *z* = -1.769, p≤ .077. Therefore, ANOVA and Mann-Whitney tests revealed similar results.

The second type of protest scores was calculated by dividing the sum of all Frequency-of-Protest (F- Protest) across games by the number of games. All types of protests were counted here. F-Protest score referred to how much a child protested the other child. Two of F-Protest scores were outliers; therefore, we replaced the two scores[27] (See Table H.3, Appendix H for descriptive statistics of F-Protest scores). Then, we conducted a 2 (relationship between rules: compatible & incompatible) x 2 (age: 3-year-olds & 5-year-olds) between subjects ANOVA on the F-Protest scores. Similar to the C-Protest scores, we found a significant main effect of age, $F(1, 66) = 15.640$, $p < .001$, $\eta_p^2 = .192$ and a main effect of relationship between rules, $F(1,66) = 41.528$, $p < .001$, $\eta_p^2 = .386$. Interestingly, different from the C-Protests, a significant interaction effect was found out, $F(1,66) = 7.888$, $p < .05$, $\eta_p^2 = .107$. Pairwise comparisons showed that, in the incompatible condition, 3-year-olds protested significantly more (M = 7.31, SE = .66) than 5-year-olds (M = 2.78, SE = .66) , $F(1,66) = 23.585$, $p < .001$, $\eta_p^2 = .263$; whereas, in the compatible condition, there was no significant difference between 3- and 5 year-olds (3-year-olds: M = 1.11, SE = .66; 5-year-olds: M = .35, SE = .70), $F(1,66) = .638$, $p = .427$, $\eta_p^2 = .010$. Furthermore, both 3-year-olds [$F(1,66) = 44.144$, $p < .001$, $\eta_p^2 = .401$] and 5-year-olds [$F(1,66) = 6.415$, $p < .05$, $\eta_p^2 = .089$] protested more in the incompatible condition (3-year-olds: M = 7.31, SE = .66; 5-year-olds: M = 2.78,

[26] Effect sizes for non-parametric test scores was calculated by the formula r = Z/√N (from Rosenthal , 1991, 19, as explained in Field, 2009, pg. 550)

[27] We considered Z-scores that were 3.29 or higher as outliers and calculated which F-Protest score correspond to Z-score of 3 by adding three Standard deviations to the mean of the F-Protest score and replaced the outliers with this score. This procedure is described in Field (2009, pg. 153).

SE = .66), than in the compatible condition (3-year-olds: M = 1.11, SE = .66; 5-year-olds: M = .35, SE = .70).

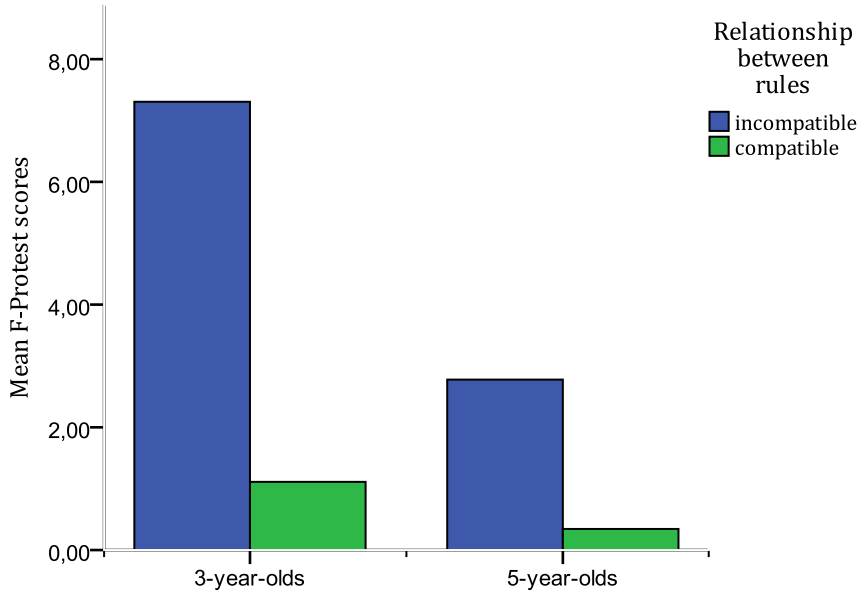

Figure 4.3. Frequency-of-Protest scores for 3- and 5-year olds in the compatible and incompatible condition

However, our sample violated the assumptions of ANOVA. The number of F-Protest scores were not normally distributed, $D(68) = .230$, $p < .001$, and homogeneity of variances were not equal across different ages (3- & 5-year-ols), $F(1,66) = 15.727$, $p < .001$, and the two different experimental conditions (compatible & incompatible), $F(1,66) = 34.533$, $p < .001$. Mann-Whitney test comparisons of 3-year-olds' F-Protest scores between compatible and incompatible condition revealed that 3-year-olds significantly protested more in the incompatible condition (*Mdn* = 4.5) compared to the compatible condition (*Mdn* = .75), $U = 12.500$, $z = -4.760$, $p < .001$, $r = -.079$. Similarly, 5- year-olds protested more in the incompatible condition (*Mdn* = 2.250) than in the compatible condition (*Mdn* = .00), $U = 26.500$, $z = -4.183$, $p < .001$, $r = -.72$. Furthermore, we compared 3- and 5-year-olds' F-Protest scores across compatible and incompatible conditions. In the incompatible condition, 3-year-olds (*Mdn* = 4.5) protested significantly more than 5-year-olds (*Mdn* = 2.250), U = 41.500, z = -3.822, p < .001, r = -.637. Yet, in the compatible condition, 3-year-olds protest scores (*Mdn* = .75) were only marginally different from 5-year-olds protest scores (*Mdn* = .00), $U = 96.000$, $z = -1.859$, $p = .063$. In general, the results of ANOVA and Mann-Whitney tests in terms of children's F-Protests were compatible with each other. The only difference was that ANOVA did not yield any significant difference between 3- and 5-year-olds'

protests in the compatible condition, whereas Mann-Whitney test revealed a marginally significant difference.

Normative protests were the most frequent protests observed in children's interactions and they were crucial, since children express their normative understanding with statements whose content was fully normative (e.g. "*You are doing it wrong*.", "*You have to put green ones here, yellow ones here*." etc.) . Therefore, we conducted a separate analysis for frequency of normative protest scores (F-Normative Protest) to have a more conservative measure of children's understanding and expressing normativity. Results of a 2 (relationship between rules: compatible & incompatible) x 2 (age: 3-year-olds & 5-year-olds) between subjects ANOVA on children's normative protest scores revealed a significant main effect of age, $F(1,66) = 6.890$, $p < .05$, $\eta^2 = .095$; a main effect of relationship between rules, $F(1,66) = 25.368$, $p < .001$, $\eta_p^2 = .278$; and a significant interaction effect between rules and age, $F(1,66) = 4.168$, $p < .05$, $\eta_p^2 = .059$. Since all of the main effects and the interaction effect were significant, we continued analysis with pairwise comparisons and found out that both 3-year-olds [$F(1, 66) = 25.846$, $p < .001$, $\eta_p^2 = .281$] and 5-year-olds [$F(1,66) = 4.359$, $p < .05$, $\eta_p^2 = .062$] displayed significantly more normative protests in the incompatible condition (3-year-olds: M = 2.84, SE = .34; 5-year-olds: M=1.22, SE= .34) than in the compatible condition (3 year-olds: M= .39 , SE= .19; 5-year-olds: M= .19, SE = .36). On the other hand, while 3-year-olds' F-Normative Protest scores did not differ from 5-year-olds in the compatible condition (3 year-olds: M= .39 , SE= .19; 5-year-olds: M= .19, SE = .36), $F(1,66) = .165$, *ns*, 3-year-olds' F-Normative Protest scores were higher than 5-year-olds' F-Normative Protests in the incompatible condition (3 year-olds: M= .39 , SE= .19; 5-year-olds: M= .19, SE = .36), $F(1,66) = 11.228$, $p \leq .001$, $\eta_p^2 = .145$ (See Table 4.1.).

Table 4.1. Descriptive statistics for F-Normative Protest scores

		M	SEM	SD	N
3 year olds	Incompatible	2.84	.34	2.55	18
	Compatible	.39	.34	.81	18
5 year olds	Incompatible	1.22	.34	.86	18
	Compatible	.19	.36	.44	16

4.2. Conflict Interactions

After analyzing the protests of individual children, we now turn to analyzing the conflicts within dyads. Hierarchical analysis of C-Conflict scores revealed that 71% of the conflicts constituted normative conflicts, i.e., for one dyad, at least one pure normative conflict occurred across the two games. 5% of the conflicts did not constitute any pure normative conflict but consisted of at least one pure imperative conflict. Finally, the remaining 23% of conflicts did not constitute any pure normative or imperative conflict but consisted of other types of conflicts that were arising out of different combinations of protests types. In order to keep the number of types of conflicts at a manageable level, we only formed 3 categories: (1) pure normative conflicts (where both partners showed normative protests), (2) pure imperative conflicts (where both partners showed imperative protests), (3) mixed conflicts (comprising any other combination of protests).

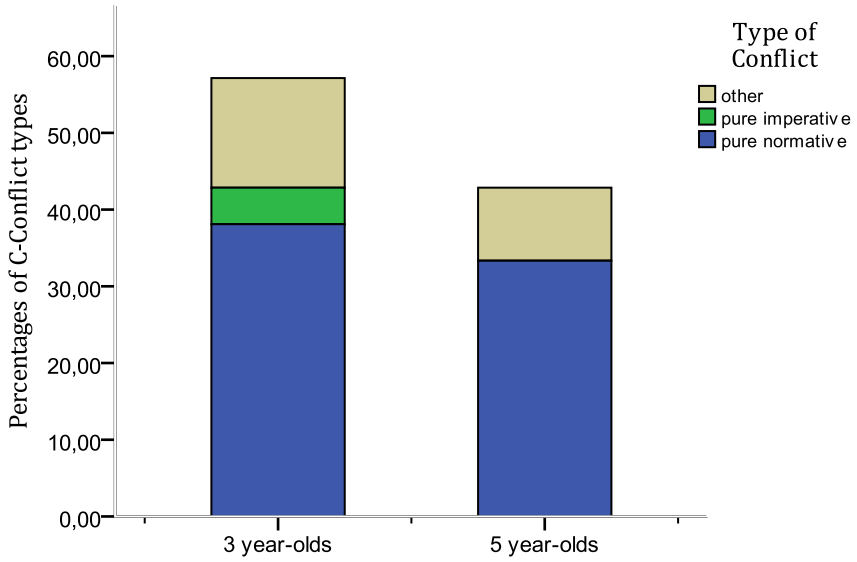

Figure 4.4. : Percentages of hierarchical C-Conflict types

Similar to the protests, every dyad had two separate conflict scores. One of these scores represented children's competence for normative conflicts (C-Conflict) and the other score represented the frequency of conflicts (F-Conflict) throughout the dyad's interaction. Each dyad's final score of conflicts was computed by dividing the conflict score of the two games by the number of games. First of all, a 2 (relationship between rules: compatible & incompatible) x 2 (age: 3-year-olds & 5-year-olds) between subjects ANOVA on dyads' C-Conflict scores was conducted. The analysis revealed a significant main effect of relationship between rules, $F(1, 31) = 52.321$, $p < .001$, $\eta_p^2 = .628$. Yet, the main effect of age

($F(1,31)=1.378$, *ns.*) and interaction ($F(1,31) = .001$, *ns.*) were not significant. Furthermore, we conducted pairwise comparisons for the variable of relationship between rules and found out that both 3-year-olds ($F(1,31)=27.261$, $p < .001$, $\eta_p^2=.468$) and 5 year-olds ($F(1, 31) = 25.126$, $p < .001$, $\eta_p^2= .448$) conflicted more in the incompatible condition (3-year-olds: M = .78, SE = .09; 5-year-olds: M = .72, SE = .09) compared to compatible condition (3-year-olds: M = .17, SE = .09; 5-year-olds: M = .06, SE = .10). However, data for C-Conflict scores was distributed non-normally, $D(35) = .258$, $p < .001$, and the assumption of homogeneity of variances across groups was violated for the variable relationship between rules, $F(1,33) = 4.873$, $p < .05$. Due to the violations of ANOVA assumptions, we also conducted non-parametric tests for conflicts. Mann-Whitney test comparisons of 3-year-olds C-Conflict scores across compatible and incompatible conditions revealed that 3-year-olds conflicted significantly more in the incompatible condition (*Mdn* = 1) compared to compatible condition (*Mdn* = 0), $U = 4.500$, $z = -3.367$, $p \leq .001$, $r = -.079$). Similarly, 5-year-olds conflicted more in the incompatible condition (*Mdn* = 1) in comparison to compatible condition (*Mdn* = .00), $U = 6.000$, $z = -3.112$, $p < .01$, $r = -.76$. Furthermore, we compared 3- and 5-year-olds' C-Conflict scores across compatible and incompatible conditions. In the incompatible condition, there was no difference between 3-year-olds' and 5-year-olds' C-Conflict scores (3-year-olds: *Mdn* = 1; 5-year-olds: *Mdn* = 1), $U = 34.500$, $z = -.617$, *ns*. Similarly, in the compatible condition, 3-year-olds C-Conflict scores (*Mdn* = 1) were not significantly different from 5-year-olds C-Conflict scores (*Mdn* = 1), $U = 28.500$, $z = -.981$, *ns*. (See Table I. 4 for descriptive statistics of C-Conflict scores).

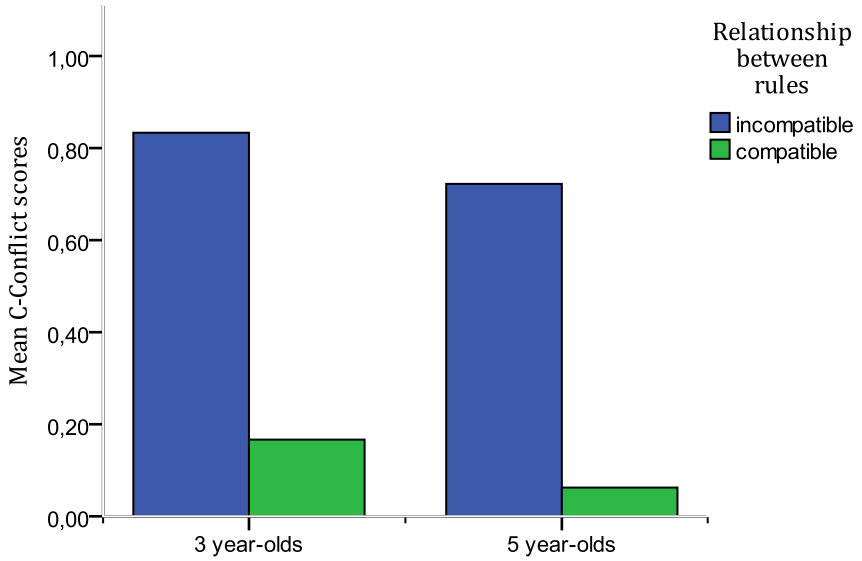

Figure 4.5. Competence-for-conflicting scores for 3- and 5-year olds in the compatible and incompatible condition

Frequency of conflicts (F-Conflict) was another dependent variable. A 2 (relationship between rules: compatible & incompatible) x 2 (age: 3-year-olds & 5-year-olds) between subjects ANOVA on dyads' F-Conflict scores revealed a significant main effect of age, $F(1, 31) = 4.482$, $p < .05$, $\eta_p^2 = .126$ and a main effect of condition, $F(1,31) = 18.222$, $p < .001$, $\eta_p^2 = .370$. Furthermore, the interaction of age and relationship between rules was also significant, $F(1,31) = 4.780$, $p < .05$, $\eta_p^2 = .134$. Since both main effects and the interaction was significant, we conducted pairwise comparisons and found out that 3 year-olds conflicted more in the incompatible condition (M =6.33, SE = .89) compared to compatible condition (M = 50, SE = .89), $F(1,31) = 21.485$, $p < .001$, $\eta_p^2 = .409$. On the other hand, there was no significant difference between 5-year-olds' F-Conflicts in the compatible condition (M = .56, SE = .94) compared to incompatible condition (M = 2.44, SE = .89), $F(1,31) = 2.105$, $p = .157$, $\eta_p^2 = .064$. Moreover, in the incompatible condition, 3-year-olds (M = 6.33, SE = .89) had significantly more conflicts compared to 5-year-olds (M = .56, SE = .94) ,$F(1,31)=9.549$, $p < .05$, $\eta_p^2 = .235$ whereas there was no significant difference between 3- and 5-year-olds' F-Conflict scores in the compatible condition (3-year-olds: M = 50, SE = .89; 5-year-olds: M = .56, SE = .94) , $F(1,31) = .002$, $p = .962$, $\eta_p^2 = .00$. (See Table I.5. for the descriptive statistics of F-Conflicts).

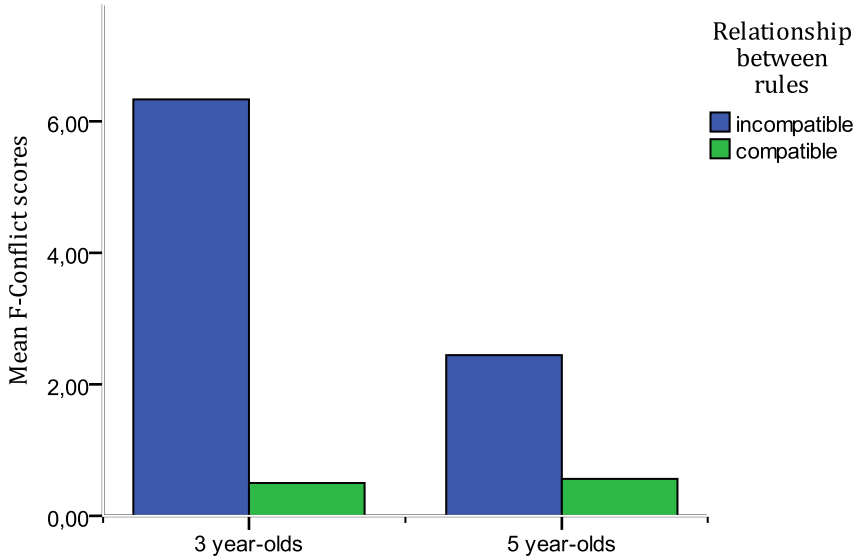

Figure 4.6. Frequency-of-Conflict scores for 3- and 5-year olds in the compatible and incompatible condition

The distribution of F-Conflict scores was non-normal, $D(35) = .237$, $p < .05$, and the assumption of homogeneity of variances were violated both for the variable of relationship between rules, $F(1,33) = 7.704$, $p < .05$ and for age, $F(1,33) = 4.347$, $p < .05$. Therefore, we conducted non-parametric test to see whether the same effects would be observed. Mann-

Whitney test comparisons for 3-year-olds F-Conflict scores between compatible and incompatible condition revealed that 3-year-olds conflicted significantly more in the incompatible condition (*Mdn* = 4.5) compared to the compatible condition (*Mdn* = 0), *U* = 1.000, *z* = -3.558, *p* < .001, *r* = -.84. Similarly, 5- year-olds conflicted more in the incompatible condition (*Mdn* = 2.5) than compatible condition (*Mdn* = 0), *U* = 11.000, *z* = -2.545, *p* < .05, *r* = -.62. Furthermore, we compared 3- and 5-year-olds' F-Conflict scores across compatible and incompatible conditions. In the incompatible condition, 3-year-olds conflicted more than 5-year-olds (3-year-olds: *Mdn* = 4.5; 5-year-olds: *Mdn* = 2.5), U = 15.000, z = -2.262, p < .05, r = -.53. Yet, in the compatible condition, 3-year-olds F-Conflict scores (*Mdn* = 0) were not significantly different from 5-year-olds F-Conflict scores (*Mdn* = 0), *U* = 30.000, *z* = -.777, *ns*.

4.3. Post-tests and Their Relation to Protest Scores

In the following, the results of the additional tests conducted with the children after the main normative study, will be presented.

4.3.1. Dimensional Change Card Sort

According to independent t-test, 3- and 5-year-olds were significantly different from each other in terms of their correct answers in the DCCS task. Specifically, 3 year-olds (*M* = 2.06, *SE* = .225) had significantly less correct answers than 5-year-olds (*M* = 2.59, *SEM* = .148), *t*(59.274) = -1.997, $p \leq .05$.[28] (However, the distribution of the sample was non-normal and the Mann Whitney test did not reveal a significant difference between 3- and 5-year-olds (3-year-olds: *Mdn* = 3; 5-year-olds: *Mdn* = 3), *U* = 467.000, *z* = -1.666, $p \leq .096$, *ns*.). Furthermore, we tested the correlation between DCCS test scores and F-Protest scores and found out that, in the compatible condition, the number of correct answers in the DCCS was negatively correlated with F-Protest scores, τ = -.292, *p* (one tailed) < .05. Yet, there was no relation between DCCS scores and F-Protests in the incompatible condition, τ = -.096, *ns*. Since the underlying cognitive capacity for DCCS is about understanding context-relativity, this relation was expected since in the compatible condition children had to keep in mind that there are two alternative ways of playing the game and flexibly deal with them and in the DCCS they also learned that there were two ways of sorting the cards and they had to be able to flexibly change between those rules.

[28] Levene's test was significant suggesting that the assumption of equality of variances was violated. Therefore, the t-test results from the row 'Equality of variances not assumed' was reported.

In order to obtain a more conservative measure of children's DCCS abilities children were separated into two groups as follows: (1) children who correctly sorted all the cards in the post-switch phase and (2) children who could not sort all of the cards correctly in the post-switch phase. Moreover, as Engemann (2010) suggested, we divided children into three groups in terms of their context-relative responding in the experimental games: (1) children who did not protest in the compatible condition but protested in the incompatible condition in both of the games got the score of 2 for context-relative responding; (2) children who protested in the compatible condition or who did not protest in the incompatible condition in one of the games got the score of 1; (3) finally, children who protested in the compatible condition or did not protested in the incompatible condition in both of the games got the score of 0. As a result children's context-relative responding ranged between 0 and 2 - where 0 means no context-relative responding, 1 means some context-relative responding, and 2 means absolute context-relative responding. A nominal cross-tab analysis revealed that 66% of context-relative responders also have high card sorting abilities whereas only 9% of the children who were not post-switchers displayed high context-relative responding.

Later, we divided children into either strict context-relative responders or not strict context relative responders. According to the nominal cross-tab analysis, the relation between conservative measures of context-relative responding and DCCS abilities in the compatible condition was marginally significant, $\Phi = .332$, $p = .060$; yet no relation was found in the incompatible condition, $\Phi = .082$, *ns*.

4.3.2. Emotional (happy/sad) Stroop Task

The Emotional Stroop task was demanding for 3-year-olds: 25% of the 3-year-olds could not either pass the teaching phase or complete the task, whereas all 5-year-olds passed the teaching phase and completed the task. As a result, further analyses of the Emotional Stroop task only represented those children who passed the teaching phase and completed the task. An independent samples t-test revealed that 3- and 5-year-olds were significantly different from each other in terms of the number of correct answers in the Emotional Stroop task. Specifically, 3 year-olds ($M = 12.19$, $SE = 1.04$, $Mdn = 14$, $N = 27$) had significantly fewer correct answers than 5-year-olds ($M = 16.74$, $SEM = .52$, $Mdn = 17$, $N = 31$), $t(56) = -4.06$, $p < .001$; $U = 194.500$, $z = -3.511$, $p < .001$, $r = .46$. Yet, no relation was found between children's F-Protest scores and emotional Stroop task scores (See Table H.7., Appendix H for frequencies of errors by the two age groups).

4.3.3. Theory of Mind

Three ToM tasks had been conducted: Explicit False Belief, Diverse Desire, and Real-Apparent Emotion. Every child had a total ToM score, which was calculated by summing all three ToM tests' scores. A marginally significant difference was found out between 3- and 5-year-olds, $t(66) = -1.91$, $p = .060$ on total ToM performance, suggesting that 3-year-olds ($M = 1.67$, , $SE = .15$, $N = 36$) showed worse performance than 5-year-olds ($M = 2.06$, $SE = .14$, $N = 32$) in general ToM performance. However, the distribution of the sample was non-normal. For this reason, we conducted a Mann-Whitney test. As different from the t-test, the Mann-Whitney test revealed a significant difference between 3- ($Mdn = 1.50$) and 5-year-olds ($Mdn = 2$) in total ToM performance, $U = 418.000$, $z = -2.055$, $p < .05$, $r = .25$. Furthermore, we conducted separate t-test and Mann-Whitney tests for the three different ToM tasks. In both explicit false belief ($t(66) = -1.029$, *ns.;* $U = 504.000$, $z = -1.029$, *ns.*) and diverse desire ($t(57.916) = 1.428$, *ns.;* $U = 494.000$, $z = -1.438$, *ns.*), there was no significant difference between 3- (Diverse Desire: $M = .86$, $Mdn = 1$; Explicit False Belief: $M = .50$, $Mdn = .50$) and 5-year-olds (Diverse Desire: $M = .72$, $Mdn = 1$; Explicit False Belief: $M = .63$, $Mdn = 1$). Yet, 3- and 5-year-olds' responses were significantly different from each other in the real-apparent emotion task, $t(64) = -3.442$, $p \leq .001$; $U = 329.000$, $z = -3.186$, $p \leq .001$, $r = .39$ with older children showing higher scores/ranks than younger children (3-year-olds: $M = .32$, $Mdn = 0$; 5-year-olds: $M = .72$, $Mdn = 1$).

Additionally, we conducted a one-way repeated measures ANOVA comparing children' s performance on the three different ToM tasks and found a significant difference between them, $F(2, 130) = 8.042$, $p \leq .001$, $\eta_p^2 = .110$. While 79% of all children gave correct answers in the diverse desire task, only 55% of the children answered correctly in the explicit false belief task. Furthermore, since 3- and 5-year-olds performed differently in the real-apparent emotion task, we investigated the frequency of correct answers separately for 3- and 5-year-olds. While 68% of the 5-year-olds answered correctly, only 32% of the 3 year-olds gave correct answers in the real-apparent emotion task.

We conducted further correlational analysis between different ToM performances (Total ToM, diverse desire, explicit false belief and real-apparent emotion performance) and protest scores (C-Protests, F-Protests); however, no significant relationship between any of these scores was found out.

4.3.4. Relation of Post-tests Scores and Frequency of Protest

Our aim for conducting post-tests was to assess whether underlying cognitive capacities of the different post-tests would explain the differences between children's protest scores

between 3- and 5-years-olds across the two different conditions (compatible & incompatible with respect to relationship between rules). For this reason, we conducted a regression analysis to investigate whether children's performance in DCCS, ES and ToM tasks would predict children's F-Protest scores. We conducted a hierarchical regression analysis and entered age in the first step of our model to set apart the variance explained by age from the tasks' variance. Then, we entered DCCS, ES and ToM tasks performance in the second step. Table 4.2. displays the results of regression analysis is provided below. In the first step, 'Age' explained 11% of the variance of children's F-Protest scores and it was significant at the .05 level. However, DCCS, ES and ToM performances did not explain any further variance of F-Protest scores apart from the variable 'Age'.

Table 4.2. Results of the hierarchical regression analysis for the dependent variable F-Protest score

	B	*SE B*	β
Step 1			
Constant	1.534	.667	
Age	2.484	.961	.332*
Step 2			
Constant	1.349	2.347	
Age	2.485	1.100	.332
DCCS	-.120	.485	-.033
ES	-.092	.119	-.117
ToM	.965	.577	.229

Note: R^2 = .110 for Step 1, ΔR^2 = .051 for Step 2. * p > .05.

Since the age variance might have covered any variance explained by DCCS, ES and ToM performance, we conducted four separate regression analysis for (1) 3-year-olds in the incompatible condition, (2) 3-year-olds in the compatible condition, (3) 5-year-olds in the incompatible condition and (4) 5-year-olds in the compatible condition. In each of them, the dependent variable was F-Protest scores and the predictor variables were DCCS, ES and ToM performance. Yet, still none of these models was significant at explaining children's protests.

4.4. Emotion Analysis

Children's emotional states were coded on a second-to-second basis throughout the two games. Every child had 7 different normalized emotional scores, namely happy, sad, annoyed/angry, neutral, puzzled, surprised and worried/tense. Yet, only three emotional states, namely neutral, happy and annoyed/angry were frequent throughout the two experimental games. The most frequent emotional state was neutral (64%), followed by 'happy' (22%) and, thirdly, 'annoyed/angry (3%). The frequency of the remaining emotional states (sad, puzzled, surprised, worry/tense) was very low (See Table H.8., Appendix H for descriptive statistics of percentages of each emotional state.)

In order to find out whether the two conditions and age had an effect on the emotional state of the children, we conducted two separate 2 (relationship between rules: compatible & incompatible) x 2 (age: 3-year-olds & 5-year-olds) between subjects ANOVA taking the emotional states of happy and annoyed/angry as dependent variables. To begin with, the ANOVA on the dependent variable 'happy' did not reveal a main effect of age and any interaction of age and relationship between rules. However, the main effect of relationship between rules was marginally significant, $F(1,64) = 3.195$, $p \leq .079$, $\eta_p^2 = .048$. Since that main effect was marginally significant, we further conducted independent samples t-test comparing 3-year-olds 'happy' emotional states between compatible and incompatible condition. Results revealed a significant difference, $t(25.132) = -2.095$, $p < .05$, $\eta_p^2 = .113$[29]. 3-year olds displayed more happy emotions in the compatible (M = 14.44, SE = 2.58) than in the incompatible condition (M = 7.36, SE = 2.74).

We conducted a second 2 (relationship between rules: compatible & incompatible) x 2 (age: 3-year-olds & 5-year-olds) between subjects ANOVA on the dependent variable of 'annoyed/angry'[30]. Results revealed a significant main effect of relationship between rules, $F(1,64) = 5.708$, $p < .05$, $\eta_p^2 = .082$. Yet, no main effect of age, $F(1,64) = .892$, *ns*, or interaction effect, $F(1,64) = .883$, *ns*, was found. In order to investigate the details of the main effect of condition, we conducted pairwise comparisons. There was a significant difference in 3-year-olds' 'annoyed/angry' scores between incompatible and compatible conditions, $F(1,64) = 5.541$, $p < .05$, $\eta^2 = .080$, meaning that 3-year-olds were more 'annoyed/angry' in the incompatible condition (M = 3.83, SE = .96) than in the compatible condition (M = .061, SE = .91). However, this significant difference was not present in 5-

[29] The distribution of the happy scores was non-normal. Therefore, we conducted non-parametric tests, as well. Comparisons of 3- and 5-year-olds across two different experimental conditions and comparisons of two experimental conditions across the two ages did not reveal any significant difference.

[30] 'Annoyed/angry' was a unitary code in our emotional coding scheme (See Appendix G for exact explanation the code).

year-olds (incompatible condition: M = 1.522, SE = .90; compatible condition: M = .61, SE = .96). There was no significant difference in 5-year-olds' annoyed/angry scores between compatible and incompatible condition, $F(1,64) = 1.050$, *ns*. Since the 'annoyed/angry' scores was not distributed normally, we conducted non-parametric tests which revealed a similar pattern of results. There was no significant difference between 3- and 5-year-olds in both compatible (3-year-olds: *Mdn* = 0; 5-year-olds: *Mdn* = 0; $U = 141.500$, $z = -130$, ns.) and incompatible conditions (3-year-olds: *Mdn = .61*, 5-year-olds: *Mdn = 0*; $U = 106.000$, $z = -1.420$, ns.). On the other hand, 3-year-olds' 'annoyed/angry' scores were significantly different between compatible (*Mdn* = 0) and incompatible conditions (*Mdn* = .61), $U = 78.000$, $z = -2.604$, $p < .01$, $r = .45$; whereas this difference was not observed for 5-year-olds, $U = 122.000$, $z = -.978$, *ns*. In sum, ANOVA and the Mann-Whitney test revealed similar results.

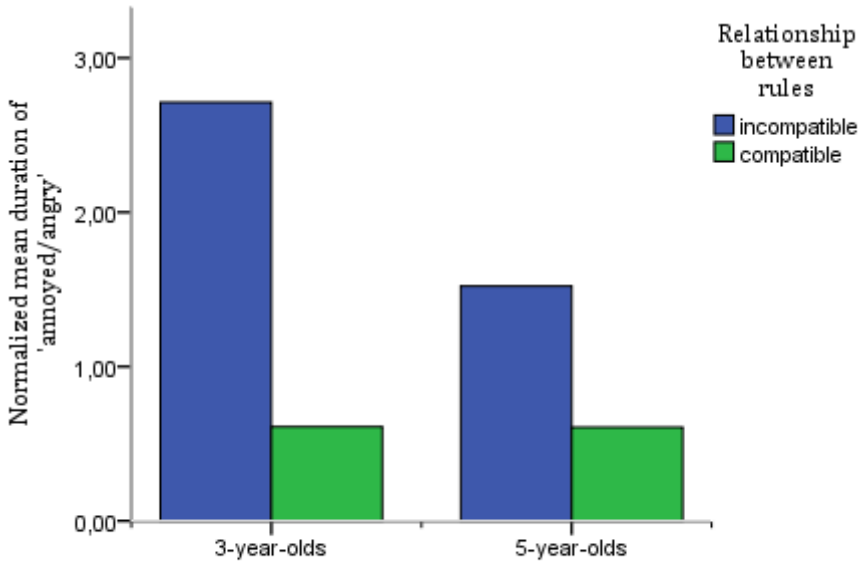

Figure 4.7. The normalized mean durations of 'annoyed/angry' scores of 3- and 5-year-olds in the compatible and incompatible condition

4.4.1. Relation of Protest Scores with the Emotional State of 'Annoyed/Angry'

In the present study, one of our aims was to investigate the relationship between children's protests and their emotional states, especially their being 'annoyed/angry'. For this reason, we conducted a hierarchical regression analysis to see how age and being 'annoyed/angry' predicts F-Protests scores of children. In the first step, the variable age was entered as a predictor variable and children's 'annoyed/angry' scores were entered in the second step. As the model suggested, we, first, aimed to assess how much variance within F-Protest scores was explained by age and, second, whether being 'annoyed/angry' explained any further

variance of F-Protest scores in addition to age. Results of the analysis revealed that age accounted for 11% of the variance of children F-Protest scores. In addition to age, being 'annoyed/angry' explained further 25% of the variance of protests (See Table 4.3). As a result, the variables age and being 'annoyed/angry', together, account for 36% of the variance in children's protests.

Table 4.3. Results of the hierarchical regression analysis for the whole sample, with F-Protest score as the dependent variable

	B	*SE B*	β	Correlations	
				Partial	Part
Step 1					
Constant	4.265	.636			
Age	-2.632	.899	-.339*	-.339	-.339
Step 2					
Constant	3.096	.591			
Age	-2.262	.772	-.291*	-.342	-.290
Being 'annoyed/angry'	.731	.145	.501**	.530	.498

Note: R^2 = .115 for Step 1, ΔR^2 = .248 for Step 2. *p < .05 and **p < .001

As Table 4.3 showed, the β weight of the predictor "age" decreased from -.339 in the first model to -.291 in the second model while being 'annoyed/angry' showed a substantial β weight of .501. Still, the predictor age remained significant. This trade-off between age and emotion variation shows that some part of age variation is in fact emotion variation.

In order to investigate the details of the regression analysis for the two age groups with respect to the relationship between the rules, we conducted two separate regression analyses for incompatible and compatible conditions. In the incompatible condition, age separately accounted for the 34% of the variance of F-Protests scores. Furthermore, 'being annoyed/angry' accounted for an additional 19% of the variance of F-Protest scores in the incompatible condition. As a result, age and being 'annoyed/angry', together, accounted for 53% of the variance of children's F-Protest scores in the incompatible condition (See Table

4.4). On the other hand, in the compatible condition, age was only marginally significant (R^2 = .087, $p \leq .090$) at explaining the variance within F-Protest scores, whereas being 'annoyed/angry' did not account for any further variance of F-Protest scores (See Table H.9., Appendix H for details of the analysis).

Table 4.4. Results of the hierarchical regression analysis for the incompatible condition, with F-Protest Scores as dependent variable

	B	*SE B*	β	Correlations	
				Part	Partial
Step 1					
Constant	7.813	.910			
Age	-5.035	1.251	-.580*	-.580	-.580
Step 2					
Constant	6.222	.900			
Age	-4.337	1.090	-.499*	-.581	-.491
Being 'annoyed/angry'	.586	.166	.445*	.537	.437

Note: R^2 = .34 for Step 1, ΔR^2 = .19 for Step 2. *$p \leq .001$.

4.5. Questionnaires

The return rate of both the Emotion Regulation Checklist and Children Behavior Questionnaire was very low. Approximately, half of the subjects' mothers completed the questionnaires. Therefore, the results of the questionnaires should not be considered as valid sources of information, but rather for providing some additional insight into the issue.

4.5.1. Emotion Regulation Checklist

Firstly, to investigate whether children's scores on Lability/Negativity and Emotion Regulation factors differed across ages, we conducted two separate independent t-tests for Lability/Negativity and Emotion Regulation factors with the independent variable of age. No

difference for Lability/Negativity [$t(17.012) = -1.472$, *ns*] and Emotion Regulation [$t(17.005) = -1.458$, *ns*] was found across the two age groups. Secondly, we conducted two correlational analyses for the factors Lability/Negativity and Emotion Regulation with F-Protest scores to see whether there was any relationship between these two scores. Yet, protest scores were not significantly related to both Lability/Negativity [$\tau = .013$, *ns.*] and Emotion Regulation [$\tau = -.180$, *ns.*]. Thirdly, we investigated whether there was any relationship between these two factors and children's 'annoyed/angry' scores by a correlational analysis. Similar to the protests scores, children's 'annoyed/angry' scores were not significantly related with Emotion Regulation [$\tau = -.238$, *ns.*] scores. On the other hand, there was a significant positive relationship between Lability/Negativity scores and 'annoyed/angry' scores, $\tau = .417$, $p < .01$.

4.5.2. Children Behavior Questionnaire

We followed similar steps as with the ERC for analyzing CBQ scores. The CBQ consisted of three factors that were Surgency/Extraversion, Negative Affectivity and Effortful Control. Firstly, we conducted three separate t-tests to investigate whether children's scores on these three factors differed across 3- and 5-years-of-age. However, none of the scores of these factors differed between the two age groups (Surgency/Extraversion: $t(17.981) = .-748$, *ns*; Negative Affectivity: $t(26) = .930$, *ns*; Effortful Control: $t(26) = .527$, *ns*.). Secondly, we conducted three correlational analyses to assess the separate relations of the three factors with F-Protest scores. However, these analyses did not reveal significant relationships between the three factors and F-Protest scores (Surgency/Extraversion: $\tau = -.207$, *ns;* Negative Affectivity: $\tau = -.062$, *ns;* Effortful Control: $\tau = -.172$, *ns.*). Finally, we conducted three correlational analyses to assess the relationship between the three factors and children's 'annoyed/angry' scores. However, no significant relationship was found (Surgency/Extraversion: $\tau = .117$, *ns;* Negative Affectivity: $\tau = -.118$, *ns;* Effortful Control: $\tau = -.190$, *ns.*).

CHAPTER 5

DISCUSSION

The main aim of the present study was to investigate late 3- and 5-year-old Turkish children's understanding of normativity in games and the relation of their normative actions with their emotional states. We were specifically interested in how normative actions arise out of peer relations since peers are closer to each other with respect to social power and knowledge compared to adult-child interactions. Thus, peer relations might give crucial insights about children's understanding of normativity. Moreover, we had hypothesized emotional states of children to arise in these contexts, especially 'anger', which might go along with children's normative interactions. With respect to development, we had expected a difference between 3- and 5-year olds in the sense that younger children display more anger than 5-year-olds when the rules of the game were violated by their peers because of their presumed poorer emotion regulation abilities and/or their less advanced understanding of normativity. Additionally, we aimed to investigate the underlying capacities of children's protest and conflicts. We hypothesized that executive functioning and ToM abilities might be two such cognitive capacities. For this reason, we conducted some executive functioning and ToM tests. Furthermore, we thought emotion regulation abilities and temperamental characteristics of children might be related with both children's normative actions and emotional states. Yet, we did not measure emotion regulation or temperamental characteristics of children directly. However, we distributed two questionnaires completed by mothers of the subjects: one measuring child emotion regulation abilities and the other measuring temperamental characteristics of children.

5.1. Protests Actions

Studies on the development of normative understanding suggested that 3-year-old children have an understanding of normativity: they protested when the rules are violated (Rakoczy et

al., 2008, Tunçgenç, 2012). This was also true for the present study: 3-year-olds protested when their partners violated the rules of the game. In fact, 3-year-olds' protests, most of the time, were normative protests meaning that they were competent enough to express their protests by producing sentences whose content was clearly normative. These results are consistent with Engemann's (2010).

The present study relied on the peer-conflict paradigm and followed the same procedure as Engemann's (2010) study. Therefore, we can directly compare the results of the two studies in terms of children's protests and conflicts. However, Engemann (2010) measured only children's competence for protesting (C-Protest) and conflicting (C-Conflict) scores. Therefore, we can only compare C-Protest and C-Conflict scores but not F-Protest and F-Conflict scores.

In Engemann (2010), both 3- and 5-year-olds were competent enough to protest their partners when the partner violated the rule of the game (as in the incompatible condition). However, 5-year-olds protested their partners more in the incompatible condition than compatible condition; whereas, in the compatible condition, 3-year-olds protested as much as they protested in the incompatible condition. These results suggested that 3-year-olds were not context-sensitive meaning they were not aware of the rules' dependency on context. Yet, this is contradictory with the previous studies in which 3- year-olds were both sensitive to the contextual differences in conventional games (Rakoczy et al., 2009) and pretense play (Wyman et al., 2009). In the present study, in the incompatible condition, 3-year-olds displayed a similar pattern with Engemann (2010), they protested "a lot". On the other hand, remaining protest patterns are not consistent across the two studies. 3-year-olds in the present study protested more in the incompatible condition than compatible condition suggesting that they were aware that the context determined the normative force of the rules. To illustrate, when children were taught two different ways for playing with certain tokens, they could discriminate that there were two different possible contexts and the other partner was free to choose between these two contexts (compatible condition) – as a result, their C-Protest scores were low. On the other hand, when they were instructed to play the specifically named game (e.g. Dizmece Game), there was only one context and their partner *ought to* play according to the rules of that context and if s/he did not, it was legitimate to protest normatively. In sum, 3-year-olds in the present study responded in a context-sensitive manner. Therefore, the present study supports the existing literature suggesting that 3-year-old children already have a context-relative understanding and context-sensitivity also holds for peer-relations (Wyman, et al., 2009). Yet, the comparisons of the present study and

Engemann (2010) experiments does not give a clue for the reason of Engemann's (2010) 3-year-olds' insensitivity to the normative force of different contexts.

In the present study, 5-year-olds, on the other hand, were also context-sensitive. They protested more in the incompatible condition than compatible condition. Low scores of C-Protest in the compatible condition were expected because of 5-year-olds'context-sensitivity in responding. Yet, what was not expected was 5-year-olds' low levels of C-Protests compared to 3-year-olds' in the incompatible condition. Interestingly, 5-year-olds protested less than 3-year-olds in the incompatible condition, as well. This finding was not consistent with Engemann's (2010) study; since, in his study, 5-year-olds protested as much as 3-year-olds in the incompatible condition. This means that even though their partners violated the rule of the game, 5-year-olds did not protest in some of the cases and just went along with what their partners did. As mentioned in Chapter 3, C-Protest scores represent children's competence for protesting (They got a score of 1 if they ever protest and a score of 0 if they never protested). Yet, it is illogical to reason that 5-year-olds protested less because they were less competent than 3-year-olds since 5-year-olds cannot "lose" their competence for protesting throughout development. There should be some other reason for 5-year-olds' low levels of protesting in the incompatible condition. Yet, we can only speculate on the reason why 5-year-olds protested less than 3-year-olds even in the incompatible condition. One explanation might be 5-year-olds might think that "*This is just a game.*" and the rules of the games are not serious; therefore, the violation of the game rules might not considered as serious offenses. Studies on normative understanding that used game paradigms are usually conducted with children younger than 5-year-olds; therefore, we cannot argue how 5-year-olds approach simple rule games. In order to test this hypothesis, one might question 5-year-olds' responses to violations of *real-life* rules and norms in order see whether 5-year-olds' low levels of C-Protest can be generalized. Yet, it is very hard to study real-life norm violations experimentally. This very fact led to the adoption of game paradigm in controlled experimental studies. Another speculation on 5-year-olds' low-levels of C-Protests in the incompatible condition might be related to different hierarchical goals that older children entertain. It could be the case that 'playing in harmony without protests and conflicts' might be a more important goal for them than 'playing according to the rules'. Since low levels of C-Protests was observed in Turkish children but not in German children, the reason might lie within certain characteristics of the Turkish culture. Turkish adults might encourage children to play in harmony with peers without protests, which might result in low levels of protests even in situations where one should protest. This development might take place between 3 and 5 years of age. Still, both the antecedent and the consequent of this relationship do not

rely on scientific knowledge and they are just speculations at the moment. There is a clear need fur future cross-cultural research, possibly comprising other cultures as well, in order to better understand the impact of culture on children's development of understanding normativity and acting normatively.

In addition to competence for protesting (C-Protest), we were also interested in the frequency of children's protests (F-Protest). As reported above, both 3- and 5-year-olds turned out to be context-sensitive. The frequency of protests was higher in the incompatible condition than compatible condition for both ages. On the other hand, in the incompatible condition, 3-year-olds frequency of protesting was higher than 5-year-olds' suggesting that 3-year-olds were more persistent on the execution of the rule they had been taught. One important limitation on children's F- Protests scores was that individual F-Protest scores were never absolutely 'individual'. One child's F-Protest score is dependent on the likelihood of his/her partner's protest(s). To illustrate, think of a scenario in which Child A, who was fully competent and 'persistent' at following the rules, was paired with Child B in the incompatible condition. Let Child A protest Child B's way of playing. If Child B did not protest Child A's protest and just applied what Child A said there was no need for Child B to continue protesting. As a result, Child A would have a low score for F-Protest. Yet, if Child A had been matched with Child C –who was also competent and persistent at following the rules – and Child C protested Child A's protest, Child A would protest back, etc. In this case, Child A would have a high score for F-Protest. As a result, Child A's F-Protest scores changes according to the characteristics of his/her partner and his/her scores would never only be an indicator of his/her own capabilities but always dependent on the other partner as well. However, if one wants to study natural peer interaction, it seems impossible to exclude the influence of the 'other'. Actually, this is not even desirable – since norms are made for regulating relations among members of a social group. However, within the scope of an experiment, this confounding variable could be controlled by matching children with the same dominance level. Yet, this factor has not been controlled in the present study since finding children with same gender and same age was hard enough; and additionally, trying to match children on their dominance level would be very hard.

5.2. Conflicts Interactions

The literature on children's conflicts suggests that conflicts on abstract concepts develop later throughout childhood (Eisenberg & Garvey, 1981; Shantz, 1987). However, in the present study, both 3- and 5-year-olds conflicted about the rules of the game. Yet, in the present study, the rules of the game were not that 'abstract' since children could directly

observe both the results of compliance to and transgression of rules by the distribution of the tokens.

In the present study, both 3- and 5-year-olds were context-sensitive with respect to their competence for conflicting. Both age groups conflicted more in the incompatible condition than compatible condition. 5-year-olds' context-sensitivity was expected since 5-year-olds in Engemann's study conflicted in a context-sensitive manner, too. However, 3-year-olds in the study of Engemann (2010) did not respond context-sensitively in terms of C-Conflicts. As a result, the difference observed in 3-year-olds between Engemann (2010) and the present study is also valid for C-Conflicts meaning that 3-year-olds in the present sample were able to discriminate between contexts and act accordingly. Moreover, we investigated the frequency of conflicts across ages and experimental conditions. Both age groups conflicted more in the incompatible condition than compatible condition. Furthermore, 3-year-olds conflicted more frequently than 5-year-olds in the incompatible condition. Yet, there was no difference between 3- and 5-year-olds frequencies of conflicts in the compatible condition. These results suggested that 3-year-old pairs were more persistent at forcing the other partner to play according to the rules. Except for three 3-year-old dyads, all dyads completed the game in the incompatible condition meaning that both 3- and 5-year-olds stopped conflicting at some point. This was not a joint "decision" of the two children; instead, one of the children stopped protesting and played according to the 'rule' of the partner. As a result, the frequency of conflict scores suggest that 5-year-olds stopped conflicting earlier than 3-year-olds, since one of the partners started to play according to the rule of the other. Whether this compliance happened due to "lower dominance" or "higher insight" cannot be decided at this moment, though.

5.3. Testing Underlying Cognitive Abilities

Our aim of including tests of Dimensional Card Change Sort (DCCS), Emotional Stroop (ES) and ToM task relied on our assumption that executive functioning and theory of mind abilities were underlying cognitive capacities that might explain the difference between 3- and 5-year-old children's normative understanding. At first, we examined whether these tests were sensitive at measuring the development through 3- to 5-years of age. The DCCS yielded a marginally significant difference between 3- and 5-year-olds whereas 3- and 5-year-olds' scores on ES were significantly different: 5-year-olds performed better compared to 3-year-olds. Furthermore, there were 3 ToM tests: while "Explicit False Belief" and "Diverse Desire" test performance was not different for 3- and 5-year-olds, in the "Real Apparent Emotion" task, 5-year-olds performed better than 3-year-olds.

The DCCS task and the compatible condition of the present experiment share some similarities. In both of these tasks, children have to keep in mind that there are two different ways to act. In line with this idea, a correlational analysis revealed a significant negative relationship between children's protests in the compatible condition and their DCCS performance. That is, children who protested less in the compatible condition of the experimental game had higher DCCS scores, suggesting that in both contexts they could keep the two alternative dimensions in their mind. However, this relationship was not supported by further regression analyses and DCCS performance does not predict children's protests even in the compatible condition if "age" is entered into the regression model. In sum, DCCS performance seems to be related with children's protests in the compatible condition – both develop at the same time – yet apart from this co-development the relationship is not robust enough to conclude that underlying executive functioning abilities for DCCS are also the reason for the difference between two age groups. Even if this was the case, this relationship would be camouflaged by the "age" variable. Moreover, even though ES yielded significant differences between 3- and 5-year-olds, ES performance was not related with F-Protests of children. Perner & Lang (2002) indeed suggested that cognitive capacities for DCCS and Stroop tasks might not overlap a lot since in Stroop tasks, one has to suppress an automatic, dominant response and, instead, has to give a response that highly interferes with the dominant response. On the other hand, in the DCCS and the compatible condition, children only had to choose between two equally non-automatic responses.

Similar to the earlier studies we found a significant difference between 3- and 5-year-old children Real-Apparent Emotion (Bayramoğlu & Hohenberger, 2007; Özoran, 2009) since 5-year-olds performed better than 3-year-olds. Moreover, the formerly suggested sequence of (Bayramoğlu & Hohenberger, 2007) gaining competence for different ToM abilities was also supported. Success level of was the highest for DD, it was followed by RAE and worst performance was observed in EFB across these three tasks.

There was no difference between 3- and 5-year-olds in Diverse Desire and Explicit False Belief tasks. This might be because, on the one hand, the Diverse Desire task is too easy for both of the age groups, while, on the other hand, the Explicit False Belief task is too demanding for both of the age groups (for similar results on Turkish pre-schoolers, see Bayramoğlu & Hohenberger, 2007). In particular, false belief reasoning was thought to be related with children's protests since if a child had the ability to question if the other might have a false belief about the rule, his/her approach to the partner would be different as compared to thinking that the partner did it wrongly even though he/she knew the rule. Both

emotional responses and normative protests would be different for these two ways of reasoning. Observations of children's interactions during the incompatible condition of the games suggested that 5-year-olds uttered sentences such as "*Sen yanlış biliyorsun… Sen yanlış öğrenmişsin*." (which can be roughly translated to English as " *You know (it) wrongly… You learned (it) wrongly*.") more often as compared to 3-year-olds whose protests were usually in the general form of "*Yanlış yapıyorsun.*"("*You are doing (it) wrongly*.") Yet, the Explicit False Belief task failed to differentiate between 3- and 5-year-olds, since both of the age groups were not very successful in this ToM task. Observations throughout the tests suggest that understanding the story of the Explicit False Belief task might be hard for both of the age groups. Therefore, one possible explanation is children's low performance on the Explicit False Belief task might not be due to their incompetence at understanding of false beliefs, but might be the consequence of incompetence at understanding the story line clearly. Therefore, children's exact false belief understanding might have been overlooked with this specific false belief task (Bloom & German, 2000). For this reason, we still suggest false belief understanding is important for children's interactions in this peer-conflict setting; yet a more sensitive measure for understanding false belief might predict children's reactions when their partner *plays incorrectly*.

5.4. Emotional States and Normative Protests

The results of the present study suggested that emotionality, indeed, relates with normative protests and conflicts of children. Due to the characteristics of the peer-conflict paradigm, the most frequent emotional state observed throughout children's interactions was 'neutral' and it was followed by happiness and annoyance/anger. The predominance of neutral emotions throughout the interactions reveals that overall, the peer conflict paradigm is suitable for the study of normativity in children as emotionally, interactions mostly remain balanced. Having established this, we looked at the other emotional states displayed by the dyads. In particular, annoyance and anger were the emotional states we focused on since we were interested in whether the partner's violation of the rule would elicit these emotions and, if so, whether this emotional response presents different patterns throughout development. Comparisons of 3- and 5-year olds' emotional state of 'annoyance/anger' across compatible and incompatible conditions revealed that 3-year-olds were more 'annoyed/angry' in the incompatible condition than compatible condition. On the other hand, 5-year-olds 'annoyed/angry' scores did not differ across incompatible and compatible conditions. Furthermore, 3-year olds' difference between the compatible and incompatible condition was consistent with their frequency of protest scores across the two conditions. They were more

‘annoyed / angry’ when their partner violated the rule and they protested their partner more. However, there is a difference between 5-year-olds’ frequency of protests and frequency of being in the emotional state of ‘annoyance/anger’ between compatible and incompatible conditions. 5-year-olds protested more in the incompatible than compatible condition; yet, they were not more ‘annoyed/angry’ in the incompatible condition than compatible condition. Observations of the children’s interactions also suggested that even though 5-year-olds conflicted with each other, they were likely to protest their partner neutrally. Therefore, their protests and conflicts seem to be dissociated from their emotional states and they can protest their partner without the elicitation, or display of, any negative valence emotions.

The dissociation between 3- and 5-year-olds resembles the first two steps of the tripartite developmental sequence of the relationship between affect and language (Bamberg & Reilly, 1996; see also Hohenberger, 2011). Studies on the relation of affect and language throughout development suggested that the influence of linguistic and affective processes on each other changes throughout development. At first, affective processes dominate language processes. Young children are more likely to express their emotions in a narrative, more para-linguistically, e.g., by facial or vocal expression. This stage is followed by the dominance of the linguistic system over the affective system in which linguistics abilities develop further, coming to dominate the paralinguistic expressions. These somewhat older children express emotions lexically, by using words like “angry” or “happy” rather than displaying these emotions. Finally, at the third stage, these two systems become integrated resulting in a “synthesis” of the two. This synthesis is characterized by joint affective expression of emotions and use of respective verbal vocabulary. In the present study, 3-year-olds’ protests seem to be effected by the affective system since their protest behavior went together with their emotional states of annoyance/anger. It is plausible to suggest that their affective system influences their protest and conflict behavior, and as a result, it affects the way they interact with their partner. However, 5-year-olds’ protests were more independent from their emotional state of ‘annoyance/anger’, since they protested and conflicted without getting ‘annoyed/angry’. Therefore, this observed difference between 3- and 5-year-olds might be a sign of two systems operating separately at first: one affective and one cognitive, influencing each other a lot, and, later in the development, they are separated, as supported by observations of 5-year-olds’ “neutral protests & conflicts”. Yet, one should keep in mind that The results of the present study are not fully consistent with the tripartite sequence of the development of affect and language since in the first stage, it was suggested that the language system is not fully developed.

Yet, in the present study, 3-year-olds were competent enough to express their understanding of normativity by producing sentences that were characterized as clear normative protest. The code of "Clear Normative Protest" consisted of lexically complex sentences such as "You learned the game wrong!, You have to put green ones here, yellow ones here!, You are playing the game wrongly!", etc.) 3-year-old children displayed as much clear normative protest as 5-year-olds did. In addition to linguistic competence, 3-year-olds also displayed as much protest and conflicts (in fact, they displayed even more protest and conflicts) as 5-year-olds and they did this in a context-sensitive manner, suggesting that they were also competent in normative protesting and conflicting. Therefore, 3-year-olds seem to be competent at both linguistic and normative aspects. However, in addition to these competences, they were more emotional in their protests and conflicts, which might be a possible reason for the high frequency of their protests and conflicts.

Further regression analysis revealed that age and emotional state of 'annoyance/anger' explained 35% of the variance in children's protests for the whole sample. In particular, some part of the variance explained by age decreased when 'annoyance/anger' was entered into the equation suggesting that some variance between the two ages was indeed variance of the emotional state of 'annoyance/anger'. These results are in line with the emotional reactivity hypothesis (Tomasello, 2005; Tomasello & Hare, 2007) from a developmental perspective. 5-year-olds protests and anger/annoyance reactions were more 'dissociated' compared to 3-year-olds'. As observations suggested, they were more 'neutral' than the 3-year-olds while they were protesting and conflicting. Suppression of affective processes might result in orienting towards cognitive processes; which, in turn, opens room for the further development of cognitive processes.

Interpreting the emotional reactivity hypothesis developmentally, i.e., ontogenetically, is a new, potentially fruitful, way of looking at the changes that the human species underwent throughout its phylogeny. The developmental sequence found in the present study, is consistent with the self-domestication scenario hypothesized by Hare and Tomasello. We might see in the development of children between 3- and 5-years-of-age a reflection of similar processes that the whole human species underwent in its past. More importantly, the developmental scenario might reveal (some of) the mechanisms by which this self-domestication might have taken place. What the present study shows is that this self-domestication is one that takes place at the individual as well as group level, through social learning. One mechanism might be through the observation of adults' model behavior, which is a more passive way of acquiring rules of proper social conduct. Alternatively, adults might

actively put pressure on and thus reinforce children to tone down their negative emotions so that they stop displaying – and, more importantly, also stop experiencing – these negative emotions in a conflicting social situation. In both ways, children may learn to appreciate more harmonic, balanced forms of social interaction instead of more stressful, conflicting ones. This change might, secondarily, be modifiable to different degrees, in different cultures in which more or less importance is laid on emotion regulation in conflicting situations. The present study on Turkish children gives a hint in that direction.

In the previous paragraph we have argued that decreased negative emotions might facilitate human social interaction. The mechanisms might be social learning and/or social sanctioning. There might be another source affecting the decrease in emotional reactivity, which is cognitive as well as cultural. The present study may also shed some light on the relation between display of emotions and understanding of normativity. It might also be that understanding what social norms mean and how they work might help toning down one's level of negative emotions which, in turn, might facilitate human social interactions, as hypothesized in the emotional reactivity hypothesis. In this perspective, a cognitive-cultural accomplishment – basing social interactions on norms – might provide a means for the regulation of negative emotion. That is, there is not only a causal direction from decreased negative emotionality to higher cognitive achievements but also a causal direction from adopting norms on (further) decreasing negative emotions. The mechanism might work as follows: If two (or a group of) humans conflict with each other they may resolve the conflict by brute force. However, this mechanism is harmful to the social cohesion and may threaten the survival of the individuals and the entire group. Therefore, evolutionarily, it is a less preferred option as compared to a solution that maintains social cohesion and, in the long run, ensures the survival of the group and its individual members. Such an option might be made available through the adoption of common norms in human interaction. Irrespective of individual power, individual levels of emotionality, gender, etc., norms provide a reason and a rational for acting in a predictable way in everyday life. Norms describe and prescribe how to do things properly – for everyone alike. Given this general application of norms in given contexts, there is no (less) need to react emotionally in case of conflict. Instead, the norm is invoked and since everyone abides by the norm, no one needs to become emotionally too much excited about the matter. In this way, norms might be a powerful cognitive and cultural mechanism of decreasing potentially harmful negative emotions. Of course, the transgression of norms may also lead to emotional arousal. As the present study shows, this is the case with the children, especially the younger ones. However, these emotional costs elicited by

norm transgression may be less than the gain from decreasing emotionality in the conflict situation in the first place.

Arguing for such bi-directional causality – from emotion regulation to cognitive achievements and from cognitive-cultural achievements to emotional regulation – is nothing unusual in the field of human social, cognitive, and cultural life. Human social life is a complex system with cognitive, emotional, social, and cultural factors being intricately interwoven with each other. The present study tapped some of these complex relationships.

CHAPTER 6

CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH

The present study aimed to investigate the development of normative understanding and its relation to emotional states by the help of peer-conflict paradigm. It found out that both 3- and 5-year-old Turkish children are able to understand the normative force of the rules so that they protested their peers when peers violated the rules. Moreover, both 3- and 5-year-olds understand that the context-sensitivity of the rules and act accordingly. 3-year-olds context-sensitivity was not present in the peer relations of German sample (Engemann, 2010). Therefore, it would be informative to investigate which underlying social/cognitive abilities makes 3-year-old Turkish sample more competent at differentiating between contexts and which environmental factors support the development of these social/cognitive abilities. Furthermore, certain findings of the present study are interesting since 5-year-olds protested less compared to 3-year-olds even in the context where they expected to protest. The design of the present study cannot explain why a significant number of 5-year-olds did not protest their peers when the rules were violated. Therefore, further research is necessary to investigate low numbers of 5-year-olds protests in the incompatible condition.

It is very interesting that, except one 5-year-old, none of the children questioned the reliability of the experimenter who taught them the rules. At the end of the experiment, a 5-year-old boy accused the experimenter for teaching different rules for the same game. If we had conducted this experiment with adults, we would expect that adults' do the same that the 5-year-old did, question that why they have different knowledge and find out they know differently because the experimenter told them differently and this would end up the conflict immediately. Yet, children seem to lack this kind of reasoning. Even though, they accused each other for "learning wrong" they could not go one-step further and question the reliability of the source of the rule, in this case, the experimenter. It would be interesting to

investigate why children cannot (or do not) question that instead of their partners, something can be wrong with the experimenter, as well.

In addition to normativity, present study presented valuable information on the relation of normative protests' relation to emotionality. 3-year-olds were also context-sensitive on the emotional state of 'annoyance/anger', that is in line with their normative protests. Yet, 5-year-olds dissociation between protests and the emotional state of annoyance/anger suggest the differentiation of cognitive and affective systems through development. This is a promising research topic and further studies can explain whether what we found is a robust finding and, to what extent, it might be generalized the other areas of cognition.

In the present study, children had final scores for their emotional and normative reactions and the analyses were conducted with these scores. Yet, we did not have the information on the temporal co-occurrence of normative actions and emotional states. A coding method yielding this information would be more explanatory since we could see whether emotional state of 'annoyance/anger' went in line with normative protests & conflicts and would be useful for suggesting causal relations between emotional states and normative actions.

In the present study, we did not coded visual and vocal emotional expressions separately; rather we collapsed the information coming from the two modalities and coded a certain emotion (e.g. happy, annoyed/angry) whenever a visual or vocal (or both) modality suggested the child was in that certain emotional state. We had chosen this strategy because coding two modalities separately would require additional effort and time that we could not give at the moment. Yet, it would be interesting to investigate whether there was dissociation between the expressions of facial and vocal modalities (see Reilly & Seibert, 2003 for the dissociation of vocal characteristics and facial expressions of 3-4 year-old children.). In the present study, coding facial and vocal emotional expressions separately might give us information whether expressions of the two modalities go together (when children's facial and vocal expressions signal the same emotional state) or is there a dissociation between the expressions of the two modalities (when certain emotional expression is present in one of the modalities but not in the other).

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APPENDICES

APPENDIX A : EXPERIMENTAL GAME MATERIALS

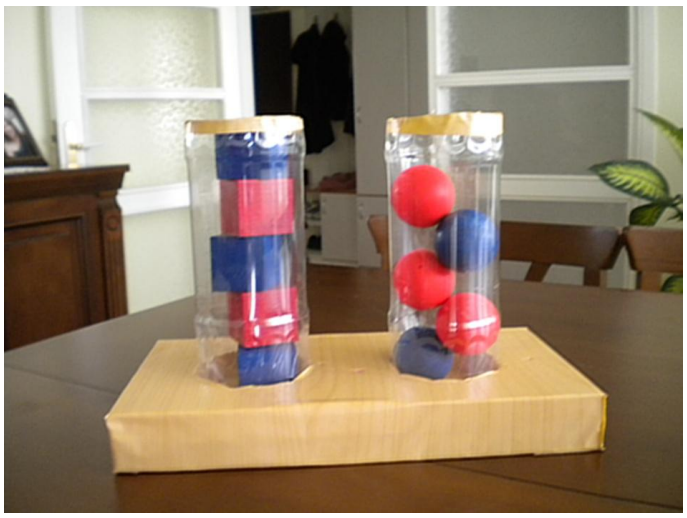

Figure A.1. Stimulus material for the Atmaca Game

Figure A. 2. Stimulus material for the Dizmece Game

Figure A.3. Rechargable dispenser (‘Kaydırak’)

Figure A.4. Stimulus material for the warm-up game

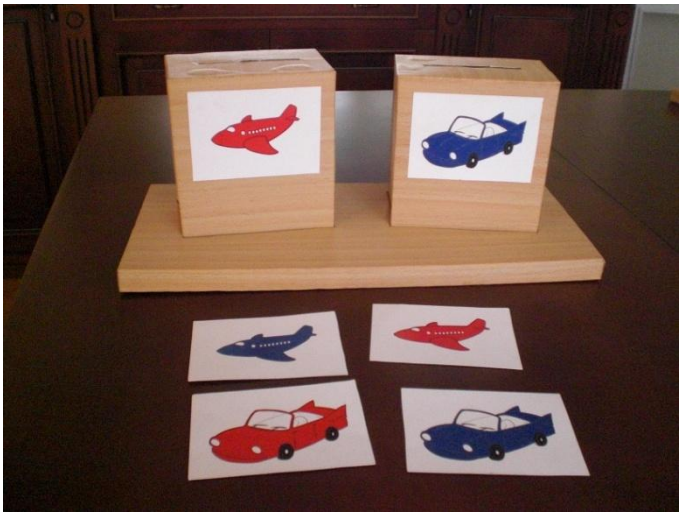

Figure A. 5. Stimulus material for the Dimensional Change Card Sort

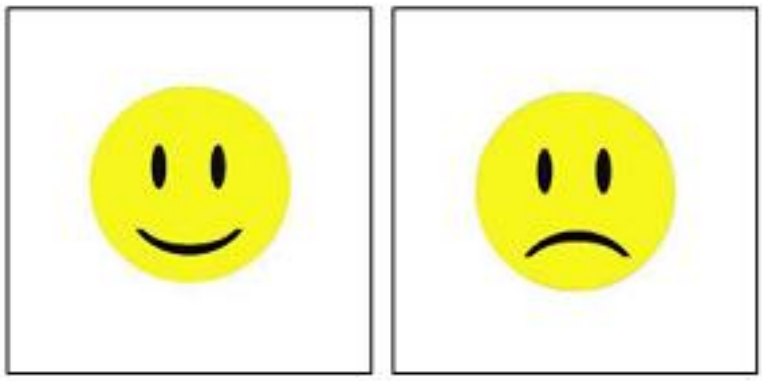

Figure A. 6. Stimulus material for the Emotional Stroop Task: a happy and a sad face

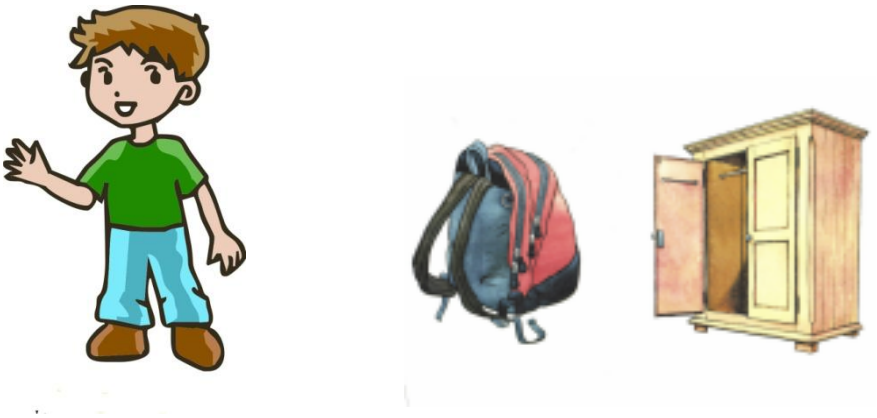

Figure A.7. ToM task 1:Stimulus material for Explicit False Belief

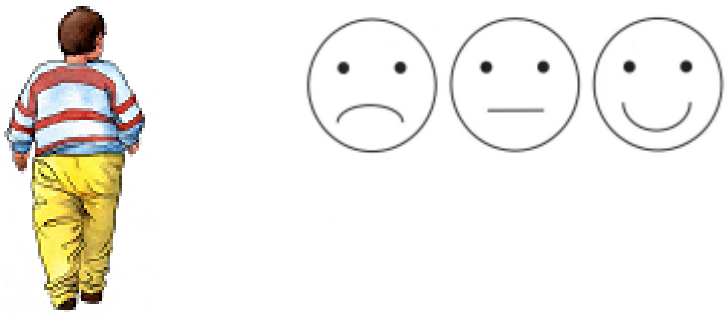

Figure A. 8. ToM task 2: Stimulus material for Real-Apparent Emotion

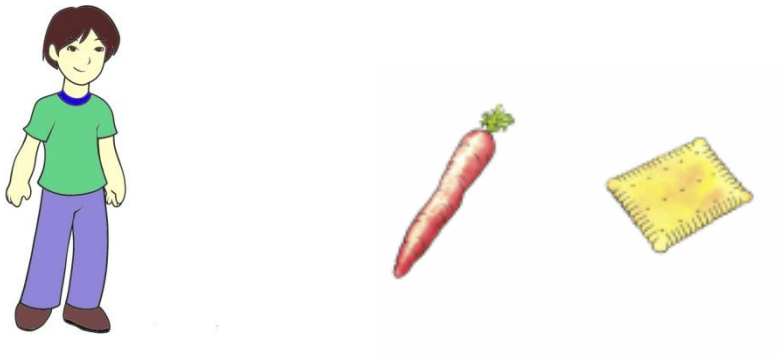

Figure A. 9. ToM task 3: Stimulus material for Diverse Desire

APPENDIX B: RECHARGABLE DISPENSER CONTENTS

Table B.1. Dispenser contents in the teaching phase, Atmaca Game (Engemann, 2010)

Target:	S		Cb									
Move:	1	2	3	4	5	6	7	8	9	10	11	12
Token:	S	Cb	S	Cb	S	Cb	S	Cb	Cb	S	Cb	S
Player:	E1	E2	T1	T2	C1	C2	C2	C3	C4	C5	C6	C7

Note. S = sphere, Cb = cube, E= experimenter, T = together, C = child

Table B.2. Dispenser contents in the testing phase, Atmaca Game (Engemann, 2010)

Target:	S		Cb									
Move:	1	2	3	4	5	6	7	8	9	10	11	12
Token:	S	S	Cb	S	Cb	Cb	S	Cb	S	Cb	S	Cb
Player:	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12

Note. S = sphere, Cb = cube, T = together, C = child

Table B.3. Dispenser contents in the testing phase, Dizmece Game (Engemann, 2010)

Target:	S		Cb									
Move:	1	2	3	4	5	6	7	8	9	10	11	12
Token:	Dg	B	Dg	B	Dg	B	Dg	B	B	Dg	B	Dg
Player:	E1	E2	T1	T2	C1	C2	C3	C4	C5	C6	C7	C8

Note. S = sphere, Cb = cube, T = together, C = child

Table B.4. Dispenser contents in the testing phase, Dizmece Game (Engemann, 2010)

Target:	S		Cb									
Move:	1	2	3	4	5	6	7	8	9	10	11	12
Token:	Dg	Dg	B	Dg	B	B	B	Dg	Dg	B	Dg	B
Player:	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12

Note. S = sphere, Cb = cube, T = together, C = child

APPENDIX C: EXPERIMENTAL PROCEDURES AND INSTRUCTIONS

TEACHING PHASE

Incompatible Condition

E1 directs child's attention to one of the targets and checks that the child understands both dimensions.

If the child has problems, she provides help. Then, she repeats the procedure for the second target.

"Bak burada beraber oynayabileceğimiz bir oyun var! Hımm, bu da ne acaba / Sen bu oyunu biliyor musun? Bu ne renk?, bunun şekli ne?., Bak bu bir uçak… Bu yeşil renk…etc" E1 gives feedbacks about characteristics of tokens.

E1 introduces the game with the dispenser on his side, out of the child's reach.

"Şimdi biz seninle Dizmece oyununu oynayacağız! Bak Dizmece oyunu şöyle oynanır..."

E1 points to the relevant sides while explaining the role they play in the game.

"Bak, eğer sarı gelirse sarıları buraya koyarız. Eğer yeşil gelirse onları da şuraya koyarız. Ama hiçbir zaman yeşillerle sarıları karıştırmayız. Çünkü Dizmece oyununun kuralı budur. Dizmece oyununda yeşiller buraya, sarılar da şuraya konur."

"Ben şimdi nasıl oynayacağımızı göstereceğim."

E1 takes a game token from the dispenser (contains 10 tokens) and holds it in front of his face speaking with emphasis:

"Aaa, bak yeşil geldi!"

She pretend to focus the game token as if wondering about which rule applies and then reasons aloud.

"Hımm… Dizmece oyununda yeşiller buraya, sarılar da buraya konur. Bu da yeşil.. O zaman bunu buraya koymalıyım."

E1 and child plays the game together. Then E1 takes the dispenser to the center and encourages the child to complete the game with the remaining game tokens.

" Eveet, şimdi de oynama sırası sen de!"

If the child sorts incorrectly, E1 teaches her in the following manner.

"Dur bakalımm.. Şimdi elindekine daha dikkatli bakalım.. Senin elinde ne renk var? Peki biz Dizmece oyununda sarıları nereye koyuyorduk? "

As soon as the child has sorted correctly 4 of the 6 remaining trials the game is completed. If needed the game is extended for a second round until a 75% criterion is reached.

"Eveet, biz Dizmece oyununu beraber oynadık!"

Same procedure will be repeated with the second child except in this case other rule will be taught to the child (e.g. shape, "Dizmece oyununda kuşları buraya, köpekleri de şuraya koyarız…)

Same procedure will be followed for 'Atmaca' Game.

Compatible condition

Similar procedure will be followed except children will be taught to play in two ways and no game name will be mentioned.

"Bak burada değişik oyuncaklar var. Biz bu oyuncaklarla iki şekilde oynayabiliriz. Şimdi ben sana bu oyuncaklarla iki şekilde oynamayı öğreteceğim. İlk olarak biz Hayvanlar Oyununu oynayalım. Hayvanlar oyununda, kuşları buraya, köpekleri de şuraya koyarız… Ya da biz bu oyuncaklarla Renk Oyununu da oynayabiliriz. Renk oyununda sarıları buraya, yeşilleri de şuraya koyarız."

TESTING PHASE

E1 invites the children to take seat while holding the dispenser in her hands.

"A, sen buraya otur, B sen de buraya otur! Şimdi siz beraber oynayacaksınız! (compatible condition)/ Şimdi siz Dizmece oyununu beraber oynayacaksınız, tamam mı? (incompatible condition). Biz şimdi dışarı çıkıyoruz, kapının önündeyiz. Oyunu/ Dizmece oyununu bitirdiğinizde bizi çağırın, tamam mı?. Eğer başka bir söylemek isterseniz de biz kapının önündeyiz..Haydi bakalım, şimdi oyun zamanı… Size iyi eğlenceler.."

Same teaching and testing procedure is repeated for 'Atmaca' Game.

In general, when E1 is called into the room she stays calm, pretends to be busy and to be unaware of any possible problems – nevertheless she is emotionally responsive and appears to be interested. She supports the children's own responsibility, makes some confirming sounds like "hımmm" and leaves the room after she was called saying "Bir sure daha oynayacaksınız, değil mi? If it is really needed E1 calms the children in the following way:

If child accuses the other or excuses herself:"Hımm, bu bir soruna benzemiyor! A, nasıl istiyorsan öyle oyna, tamam mı?"

If children want to be directed:"A, nasıl oynaman gerektiğini biliyosun / B, eğer farklı bir şekilde oynamak istiyorsun öyle oynayabilirsin.." (adapted from Engemann, 2011)

APPENDIX D: THEORY OF MIND TASKS

Diverse Desire

Props: Small figurine of a man plus colored realistic drawings of carrot on one half and cookies on the other.

Story: Bak bu Osman (place figure next to Picture, midway between two items). Geçen gün Osman'la beraberdik, Osman'ın karnı acıktı ve canı bir şeyler yemek istedi. Burada Osman'ın yiyebileceği 2 şey vardı: havuç (point) ve bisküvi (point).

Own Desire: Sen en çok hangisini seviyorsun? Havucu (point) mu, yoksa bisküviyi (point) mi?

_____havuç _____bisküvi

If carrot: Peki, bu çok güzel bir seçim. AMAAA Osman aslında bisküvi sever (don't point). Havuç sevmiyor. Onun en çok sevdiği şey bisküvi.

If cookie: Peki, bu çok güzel bir seçim, AMAAA Osman aslında havuç sever (don't point). Bisküvi sevmiyor. Onun en çok sevdiği şey havuç.

Question: Yemek yeme zamanı gelince, Osman sadece bunlardan birini seçti. Sadece birini. Osman (point to Osman) sence hangisini seçti?

Havucu mu, bisküviyi mi?

Havuç_____ Bisküvi_____

(Özoran, 2009)

Explicit False Belief

Props: Small figurine of a boy plus colored realistic drawing of closet on one half and backpack on the other.

Story: Bak bu Emre. Geçen gün Emre eldivenlerini arıyordu. Emre'nin eldivenleri ya çantasındaydı yada dolaptaydı. ASLINDA Emre'nin eldivenleri gerçekten de sırt çantasındaydı (point and pause). AMA Emre eldivenlerinin dolapta olduğunu düşünyordu (point).

Questions: Peki, sence, Emre eldivenleri için nereye baktı?

Sırt çantasına mı, dolabına mı?

Sırt çantasına_____ Dolabına_____

Emre'nin eldivenleri gerçekte neredeydi? Sırt çantasında mı dolabında mı?

Sırt çantasında_____ Dolabında_____

(Özoran, 2009)

Appearance Reality Emotion

Pre-training

Props: Picture showing drawing of a boy's head (not face or expression). Emotion scale: a strip of three simple "faces" (bare-bones "smiley"-type black and white faces of just circular outline plus simple eyes and line-like mouths) : one happy, one sad and (in the middle of strip) one neutral.

Experimenter: Şimdi ben sana bir çocuk hakkında bir hikaye anlatacağım (Take out emotion scale). Bu hikayede bu çocuk kendini mutlu da hissediyor olabilir (point), üzgün de hissediyor olabilir (point) ya da ne mutlu ne üzgün sadece normal de hissediyor olabilir.

Şimdi bana gösterebilir misin, bu yüzlerden hangisi

Üzgün?

Normal?

Mutlu?

(Train child if child makes a mistake)

Experimenter: Tamam, şimdi hikayeye geçelim. Hikayeyi anlattıktan sonra bu çocuğun gerçekte ne hissettiğini (pat own chest) ve yüzündeki ifadeyi soracağım (pat own cheek). Onun nasıl hissettiği (pat own chest) ile yüzündeki ifade (pat own cheek) aynı da olabilir farklı da olabilir.

(At this point the emotion scale is pushed to one side. The child does not have to answer the target question by pointing at the scale. The scale remains inside but out of the way just to provide a visual reminder of the warm up, unless the child is unusually nonverbal.)

The task

Experimenter: Bu hikaye Mert hakkında (show toy character) Geçen gün Mert'le beraberdik. Mert'in teyzesi gittiği bir yolculuktan daha yeni dönmüş. Bu yolculuğa çıkmadan önce de Mert'e gittiği yerden bir oyuncak araba getireceğine dair söz vermiş.

AMA oyuncak araba yerine bir kitap getirmiş. Halbuki Mert kitapları sevmez (slow pace). Mert'in asıl istediği şey oyuncak bir arabaydı.

AMAA Mert ne hissettiğini saklamak zorundaydı, çünkü eğer teyzesi Mert'in gerçek duygularını öğrenirse ileride ona bir daha hiçbir şey almazdı.

Memory check: Mert'in teyzesi ona ne almış? _____

(correct answer: a book… If the child gets the answer wrong, tell the story again)

Peki, eğer teyzesi Mert'in gerçekte ne hissettiğini öğrense ne yapardı?

_____

(correct answer: she will never buy anything for Mert anymore… If the child gets the answer wrong, tell the story again)

Question: Peki, Mert gerçekte sence ne hissetti teyzesi ona kitabı verdiğinde (pat own chest)?

Mutlu mu, üzgün mü, normal mi? (Note: the examiner should not show any feelings)

(Reiterate choice again if the child still does not answer)

Mutlu_____ Üzgün_____ Normal_____

Peki, sence Mert nasıl gözükmeye çalıştı, teyzesi ona kitabı verdiğinde (pat own cheek)? Mutlu mu, üzgün mü, normal mi? (Note: the examiner should not show any feelings)

(Reiterate choice again if the child still does not answer)

Mutlu_____ Üzgün_____ Normal_____

(Özoran, 2009)

APPENDIX E: PARENTS CONSENT FORM

Sayın Veliler, Sevgili Anne-Babalar,

Çocuklar, yaşamlarının ilk yıllarından itibaren neyi, nerede, nasıl yapmaları/yapmamaları gerektiğini anlatan pek çok kural öğrenmeye başlarlar. Bu kuralları uygulama biçimleri, duygusal gelişimleri ve içinde yaşadıkları toplumsal ilişkileri nasıl algıladıkları ile ilişkilidir. Bu çalışma, norm algısının gelişimsel olarak nasıl değişim gösterdiğini çocukların oyun kurallarına verdiği tepkiler ile araştırmaktadır. Orta Doğu Teknik Üniversitesi Bilişsel Bilimler yüksek lisans öğrencisi Özgün Köksal tarafından yüksek lisans tezi kapsamında yapılmaktadır. Tezin danışmanlığını, aynı bölümde öğretim görevlisi olan Yard. Doç. Dr. Annette Hohenberger yapmaktadır. Çalışmanın amacı, 4 ve 6 yaşlarındaki Türk çocukların arkadaşları ile ilişkilerinde kuralları nasıl algıladılarını ve uyguladıklarını araştırmaktır.

Katılmasına izin verdiğiniz takdirde çocuğunuzla kendi enstitüsündeki (yuva, kreş vb.) oyunlar oynayacağız. Çalışmanın amacı çocukların arkadaş ilişkilerinde normları nasıl algıladıkları olduğu için, çocuklara farklı kurallarla oynanan oyunlar öğretilecek, sonrasında yaşıtı bir arkadaşıyla oyunu beraber oynamaları istenecektir. Bunun yanında çocuğunuzun bilişsel ve duygusal gelişimi ile ilgili, oyuna benzer bazı testler yapacağız. Bu testlerin bir kısmı çocuğunuzun başkalarının kendilerine özgü düşünce ve duygularının olabileceğinin ne kadar farkında olduğu ile ilgili olup, çocuğunuza küçük bir çocuk hakkında kısa hikayeler anlatılacak ve çocuğunuza hikayedeki karakterin bakış açısı ile ilgili kısa sorular sorulacaktır. Testlerin geri kalanı çocuğunuzun bilişsel tepkilerinin kontrolüyle ile alakalıdır. Çocuğunuza üzerinde hayvan, meyve ya da belli objelerin olduğu kartlar gösterilecek, ondan kartları sıralaması, isimlendirmesi vb. istenecektir. Tüm prosedür yaklaşık olarak 30 dakika sürecek olup çocuğunuzun yaş grubuna uygun olarak hazırlanmıştır. Bu anlamda, onun bilişsel ve/veya fiziksel kapasitesini zorlayıcı, ona fiziksel ve/veya psikolojik rahatsızlık verecek herhangi bir unsur bulunmamaktadır.

Çocukların oyunları kurallar dahilinde nasıl oynadıkları ve arkadaşlarının oynayışıyla ilgili tepkileri incelenecektir. Bu amaçla, bütün deneyler video ile kayıt altına alınacaktır. Çocukların kendilerini mümkün olduğunca rahat hissetmesi ve doğal tepkilerini

yansıtabilmesi için davranışlarının kaydediliyor olduğunu bilmemeleri gerekmektedir. Görüntü ve/veya ses kayıtları tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Kayda alınan görüntü ve/veya ses kayıtlarının hiçbir bölümü çocuğunuzun kimliğiyle eşleştirilmeyecek, çalışmayla bilimsel amaçlar dışında ilgilenen kişilere sunulmayacaktır. Elde edilecek bütün bilgiler, yalnızca bilimsel yayımlarda kullanılacaktır.

Çocuğunuzun görüntü kayıtlardan elde edilecek veriye ek olarak, çocuğunuzun davranışları ile ilgili olarak 50 soruluk bir ölçek doldurmanızı istemekteyiz. Bu ölçek çocuğunuzun mizaç ve duygu düzenleme özellikleri ile ilgili bilgi edinmemizi sağlayacaktır. Ölçeği doldurmanız yaklaşık olarak 10 dakikanızı alacaktır. Bu ölçekten elde edilecek sonuçlar çocuğunuzun ya da sizin kimliklerinizle eşleştirilmeyecek, bilimsel amaçlar dışında ilgilenen kişilere sunulmayacaktır, yalnızca bilimsel yayımlarda kullanılacaktır.

Çalışmaya katılım tamamıyla gönüllülük temelinde olmalıdır. Katılım öncesinde ya da esnasında herhangi bir nedenden ötürü çocuk kendisini rahatsız hissederse deneyi yarıda bırakıp gitme hakkına sahiptir. Bu hakka sahip olduğu, çocuklara deney salonuna alındığı anda da söylenecektir. Böyle bir durumda deneyi uygulayan kişiye, devam etmek istemediğini söylemesi yeterli olacaktır.

Çocuğunuzun bu çalışmaya katılmasına izin vererek bize sağlayacağınız bilgiler bizlere büyük katkı sağlayacaktır. Çalışma hakkında daha fazla bilgi almak için ODTÜ Bilişsel Bilimler yüksek lisans öğrencisi Özgün Köksal (Tel: (53x)xxx xxxx, E-posta: xxxxx@gmail.com) ODTÜ Bilişsel Bilimler öğretim üyesi Annette Hohenberger (Tel: (312) xxx xxxx, E-posta: xxxxx@ii.metu.edu.tr) ile iletişim kurabilirsiniz.

Şimdiden teşekkür ederiz.

Özgün Köksal

Yukarıda açıklamalarını okuduğum araştırmaya tamamen gönüllü olarak çocuğum

.....’nın katımasına izin veriyorum.

Veli Adı-Soyadı

.....

İmza

Lütfen imzaladığınız formu çocuğunuz aracılığıylaYuva Müdürlüğü'ne VEYA e-posta yoluyla ozgunkoksal@gmail.com'a teslim ediniz.

Eğer çocuğunuzun katılımıyla ve/veya haklarının korunması ile ilgili bir sorunuz varsa ya da çocuğunuzun risk veya stres altına gireceğinizi düşünüyorsanız, Orta Doğu Teknik Üniversitesi İnsan Araştırmaları Etik Kurulu'na şu telefondan ulaşabilirsiniz (312) xxx-xxxx.

APPENDIX F: NORMATIVE CODING SCHEME AND INSTRUCTIONS

Protests

Utterances must be coded as protests only if the utterer has an intention of protesting of the rule that the other child follows.

Tablo F.1. Normative coding scheme adapted from Rakoczy et al. (2008)

Main categories **Code**	**Theoretical Def.**	**Sub-categories /** **Operational Def.**	
***Rule-source**	**Referring to the source of the rule**	▪ **positive** ▪ "Öğretmen öyle dedi." ▪ "Öğretmenle öyle oynadık." ▪ "Ben öyle öğrendim."	P+_source
		▪ **negative** ▪ "Öyle demedi." *[the subject of the utterance (the experimenter) can be inferred from ongoing conversation.]*	P-_source
„P+"	***Clear normative protest***: rebuke, criticism, correction, showing	▪ rebuke/criticism etc. **NEGATIVE**: - "Maviler oraya konmaz." - "Bu şekilde oynanmaz." -"Hayır, bu buraya." -"Yanlış yapıyorsun." -"Köpekler oraya değil." -"Mavileri karıştırıyorsun."	P+_neg
		▪ Correction etc. **POSITIVE**: - "Maviler buraya, kırmızılar buraya.." *(If this sentence is uttered at the beginning of the interaction and does not have intention of protest, it is not coded as a protest.)* - "Onu buraya koymalısın"	P+_pos

		▪ **Showing / Teaching**: Def. CHILD SHOWS - "Bak ben sana göstereyim." - "Bak böyle yapacaksın." -Bu buraya,tamam mı? -Kırmızılar buraya, maviler buraya, tamam mı?	P+_teach
		▪ **Possible additional codes:** - Child TELLS E1 that the other child "always does it wrong", or the like.	P+_E1
P_imp	**Imperative (or question) Protest** **(without any normative elements, e.g., „it works like that" / „must" etc.)** **Complete sentence was given but explicitly normative features are missing and that the child had intention to make the listener undo her action or prevent her acting in a specific way.**	▪ **Positive imperative** - "Kırmızıları buraya at" - "Maviyi buraya koy. - "Al". *[the object of the utterance (tokens) can be inferred from the ongoing conversation]*	P_imp+
		Negative imperative - "Kırmızıları oraya koyma!" - "Yapma" *[the object of the utterance (tokens) can be inferred from the ongoing conversation]*	P_imp-
		▪ **Question:** - "Ama böyle olur mu? - **"**Kırmızılar oraya konur mu? **-"**Niye bozuyorsun?"	P_quest
***P_dec**	**Declarative Protest** **Expressing the rule by referring to oneself e.g. stating a choice of acting**	**Positive:** -"Yeşiller bende, sarılar sende." -"Ben böyle yapıcam."	P_dec+
		Negative: -"Ben öyle yapmıcam."	P_dec-

P_O	**Simple Opposition** (Write this code if it is not followed by normative or imperative protest afterwards)	▪ "Hayır" ▪ "Olmaz" ▪ "Yaaa…" ▪ "ı-ııı." ▪ "O köpek." ▪ "Ama kuş."	
„P_?"	**Hints of Protest** Beginning of protest, however, **not distinctive enough** for the two categories above	▪ **GESTURES:** pointing to correct object without handling *(including labeling, if ONLY labeling and nothing else),* etc. - Pointing the red ball and saying "Kırmızı" demek	P?_gest
		▪ **GIVING/OFFERING:** Child offers the other child one of the tokens with the intention of forcing the other child according to his/her own rule.	P?_give
		▪ Child tries to **REACH** the correct object herself, assembles it, or the like	P?_reach
		▪ Child tries to **PREVENT** the action of the other child -Holds hands over the tubes in Atmaca Game -Holds hands over the board in Dizmece Oyunu -Try to get the tokens from the other child -	P?_prevent
		▪ **LOOKING** towards **E1**, seeking for help or looking critically	P?_look
		▪ **REVERSE ACTION** Child (or attempts to) get off the tokens that the other child put	
–	Doubtlessly **NO** normative protest reaction		dnnpr

*These categories (Rule source, Declarative) were added to the coding scheme for the present study.

Conflicts

If a protest of one child is immediately followed by a protest of the other child, this interaction is coded as a conflict.

Example (Conversation and hints of protests of a 3-year-old pair in the incompatible condition)

1. K: *Ne? Bu oraya değil* (reverse action)
2. …
3. K:*Bu nereye?*
4. D: *Toplar buraya.(*1)
5. K: *I-ıı.* (reverse action) (1) (2)
6. D: *O zaman yanlış yapıyosun.* (2)
7. …
8. D: *Kutay yanlış yapıyor.* (to the experimenter)
9. K: *I-ıı.* (reverse action) *Bu buraya.* (3)
10. D: *Hayır* (reverse action) (3) (4)
11. K: *O oraya. O oraya.* (4)

    (Note: Numbers at the end of the lines correspond to the conflicts they are part of.)

To illustrate, 1st sentence is a protest, however, it is not immediately followed by a protest from the other child. Therefore, it is not a part of conflict.

4th and 5th lines constitute one conflict. 5th and 6th lines constitute another conflict. Then, there is a gap in the ongoing interaction.

Protests to the experimenter are not counted as parts of conflicts. Therefore, 8th line is not considered as a part of conflict. 9th and 10th lines, 10th and 11th lines are also coded as conflicts.

As a result, there are 4 conflicts in this specific interaction.

APPENDIX G: EMOTIONAL CODING SCHEME

Table G .1. Emotional coding scheme adapted from Denham (1990)

Happy	✚ Expresses pleasure or joy: smiles, hums, sings, laughs, jumps for joy, cheers, etc. ✚ Voice moves up & down in pitch freely, sounds relaxed.
Sad	✚ Expresses unhappiness or grief: looks dejected, sorrowful, etc. ✚ Expresses worthlessness, withdrawal. ✚ If focal is whiny with a sad quality to his voice ("You always take blue ones!"), code "sad."
Annoyed/Angry	✚ Shows irritation or disappointment. ✚ Clenches teeth. ✚ Shows displeasure or disapproval by verbal and/or physical attacks such as yelling, striking, passive aggression, or active non-compliance. ✚ If focal is whiny with an annoyed or angry quality to her/his voice, ("Don't put red ones there!, No, red ones here, blue ones here!" code "annoyed/angry."
Worried*/Tense	✚ Looks worried. Acts uncertain or apprehensive. ✚ Anxious. Agitated. ✚ Jumpy or unable to relax.
Neutral	✚ Showing no particular kind of emotion.
*Surprised	✚ Surprised face, raised eyebrows, open-mouthed.
*Puzzled	✚ Looks around as if she/he cannot understand. Looks as trying follow what is going on.
Other	✚ Any emotion not listed: guilt, disgust, , etc. When making notes after observation, describe the emotion.

*Emotional states of worried, surprised and puzzled were added to the original coding scheme due to the necessities of the present study.

APPENDIX H: ADDITIONAL STATISTICAL INFORMATION

Table H.1. Descriptive statistics for 6 different types of protests

		Reference to Rule Source			
		M	SE	SD	N
3 year olds	Compatible	.056	.070	.236	18
	Incompatible	.250	.070	.429	18
5 year olds	Compatible	.0625	.074	.171	16
	Incompatible	.111	.070	.274	18
		Normative Protest			
		M	SE	SD	N
3 year olds	Compatible	.39	.379	.81	18
	Incompatible	2.84	.379	2.55	18
5 year olds	Compatible	.19	.402	.44	16
	Incompatible	1.22	.379	.27	18
		Imperative Protest			
		M	SE	SD	N
3 year olds	Incompatible	.417	.075	.492	18
	Compatible	.083	.075	.257	18
5 year olds	Incompatible	.111	.075	.274	16
	Compatible	.031	.080	.125	18
		Normative Declaration			
		M	SE	SD	N
3 year olds	Incompatible	.278	.107	.732	18
	Compatible	.222	.107	.392	18
5 year olds	Incompatible	.139	.107	.334	16
	Compatible	.000	.114	.000	18
		Simple Opposition			
		M	SE	SD	N
3 year olds	Incompatible	1.111	.187	1.461	18
	Compatible	.083	.187	.192	18
5 year olds	Incompatible	.667	.187	.521	16
	Compatible	.031	.199	.125	18
		Hints of Protest			
		M	SE	SD	N
3 year olds	Incompatible	2.972	.307	2.291	18
	Compatible	.278	.307	.392	18
5 year olds	Incompatible	.944	.307	1.083	16
	Compatible	.031	.326	.125	18

Table H.2. *Descriptive Statistics for C-Protest Scores*

		M	SE	SD	N
3 year olds	Incompatible	.92	.071	.19	18
	Compatible	.36	.071	.37	18
5 year olds	Incompatible	.72	.071	.31	18
	Compatible	.16	.075	.30	16

Note: C-Protest scores ranged between 0 and 1. Children could get either a score of 0, .5 or 1.

Table H.3. *Descriptive Statistics for F-Protest Scores*

		M	SE	SD	N
3 year olds	Incompatible	7.31	.66	4.65	18
	Compatible	1.11	.66	1.61	18
5 year olds	Incompatible	2.78	.66	2.38	18
	Compatible	.34	.70	.72	16

Table H.4. Descriptive Statistics for C-Conflict Scores

		M	SE	SD	N
3 year olds	Incompatible	.78	.09	.26	9
	Compatible	.17	.09	.25	9
5 year olds	Incompatible	.72	.09	.36	9
	Compatible	.06	.1	.18	8

Tablo H.5. Descriptive Statistics for F-Conflict Scores

		M	SE	SD	N
3 year olds	Incompatible	6.33	.89	4.63	9
	Compatible	.50	.89	.87	9
5 year olds	Incompatible	2.44	.89	1.79	9
	Compatible	.56	.94	1.59	8

Table H.6. Contingencies of context-sensitive responding and children sorting all of the cards correctly in the post-switch phase of DCCS

		Context-sensitive responding in experimental games		
		0	1	2
N of children sorting all the cards correctly in DCCS	Yes	5	10	33
	No	0	10	10

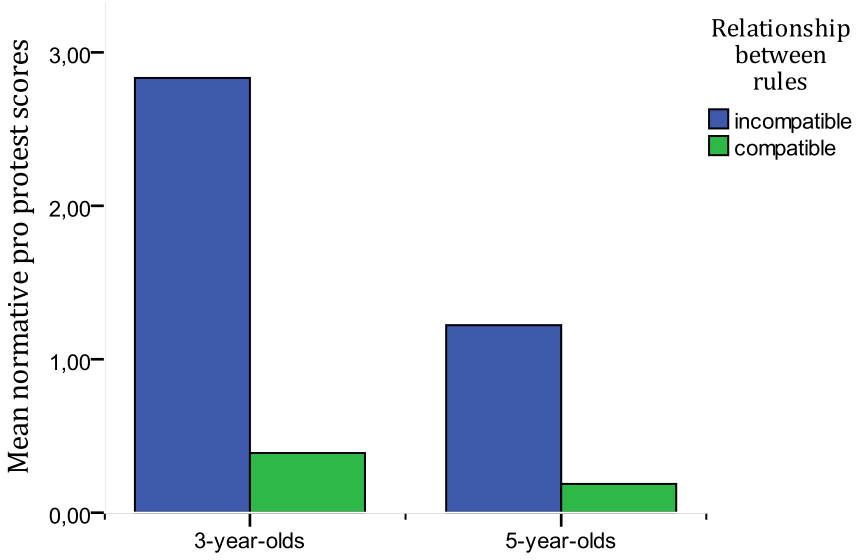

Figure H.1. Basic protest scores in response to different relationships between rules

Table H.7. Frequencies of errors by age group

	3 year olds	5 year olds
Number of errors		
0	-	5
1	1	1
2-4	8	12
5-7	7	7
8-10	4	2
11+	7	1
Number of children who could not pass the teaching phase	9	4

Table H.8. Descriptive statistics for the percentages of 7 types of emotional scores

	M	SEM	SD	N
Neutral	64.46	2.74	22.56	68
Happy	21.94	2.56	21.15	68
Annoyed/Angry	3.28	.92	7.56	68
Sad	1.03	.54	4.48	68
Surprised	.28	.13	1.06	68
Puzzled	.44	.26	2.13	68
Worry/Tense	.14	.06	.5	68

Table H.9. Results of the multiple regression analysis for the compatible condition

	B	*SE B*	β
Step 1			
Constant	1.111	.301	
Age	-.767	.439	-.295
Step 2			
Constant	1.096	.319	
Age	-.767	.445	-.295
Being ‘annoyed/angry’	.024	.148	.028

Note: R^2 = .087 for Step 1, ΔR^2 = .001 for Step 2. *,ns.*

APPENDIX I: EMOTION REGULATION CHECKLIST (TURKISH VERSION)

DUYGU DÜZENLEME ÖLÇEĞİ

Aşağıdaki listede bir çocuğun duygusal durumu ile ilgili çeşitli ifadeler yer almaktadır.

Verilen numaralandırma sistemini kullanarak, aşağıdaki davranışları çocuğunuzda ne sıklıkla gözlemlediğinizi lütfen işaretleyiniz:

Bu davranışı:

(1) HİÇBİR ZAMAN / NADİREN

(2) BAZEN

(3) SIK SIK

(4) NEREDEYSE HER ZAMAN gözlemliyorum.

	HİÇBİR ZAMAN	**BAZEN/ NADİREN**	**SIK SIK**	**NEREDEYSE HER ZAMAN**
1. Neşeli bir çocuktur.	**1**	**2**	**3**	**4**
2. Duygu hali çok değişkendir (Çocuğun duygu durumunu tahmin etmek zordur çünkü neşeli ve mutluyken kolayca üzgünleşebilir).	**1**	**2**	**3**	**4**
3. Yetişkinlerin arkadaşça ya da sıradan (nötr) yaklaşımlarına olumlu karşılık verir.	**1**	**2**	**3**	**4**
4. Bir faaliyetten diğerine kolayca geçer; kızıp sinirlenmez, endişelenmez (kaygılanmaz), sıkıntı duymaz veya aşırı derecede heyecanlanmaz.	**1**	**2**	**3**	**4**

5. Üzüntüsünü veya sıkıntısını kolayca atlatabilir (örneğin, canını sıkan bir olay sonrasında uzun süre surat asmaz, endişeli veya üzgün durmaz).	**1 2 3 4**
6. Kolaylıkla hayal kırıklığına uğrayıp sinirlenir (huysuzlaşır, öfkelenir).	**1 2 3 4**
7. Yaşıtlarının arkadaşça ya da sıradan (nötr) yaklaşımlarına olumlu karşılık verir.	**1 2 3 4**
8. Öfke patlamalarına, huysuzluk nöbetlerine eğilimlidir.	**1 2 3 4**
9. Hoşuna giden bir şeye ulaşmak için bekleyebilir. (örneğin, şeker almak icin sırasını beklemesi gerektiğinde keyfi kaçmaz veya heyecanını kontrol edebilir).	**1 2 3 4**
10. Başkalarının sıkıntı hissetmesinden keyif duyar (örneğin, biri incindiğinde veya ceza aldığında güler; başkalarıyla alay etmekten zevk alır).	**1 2 3 4**
11. Heyecanını kontrol edebilir (örneğin, çok hareketli oyunlarda kontrolünü kaybetmez veya uygun olmayan ortamlarda aşırı derecede heyecanlanmaz).	**1 2 3 4**
12. Mızmızdır ve yetişkinlerin eteğinin dibinden ayrılmaz.	**1 2 3 4**

13. Ortalığı karıştırarak çevresine zarar verebilecek enerji patlamaları ve taşkınlıklara eğilimlidir.	**1**	**2**	**3**	**4**
14. Yetişkinlerin sınır koymalarına sinirlenir.	**1**	**2**	**3**	**4**
15. Üzüldüğünü, kızıp öfkelendiğini, veya korktuğunu söyleyebilir.	**1**	**2**	**3**	**4**
16. Üzgün veya halsiz görünür.	**1**	**2**	**3**	**4**
17. Oyuna başkalarını katmaya çalışırken aşırı enerjik ve hareketlidir.	**1**	**2**	**3**	**4**
18. Yüzü ifadesizdir; yüz ifadesinden duyguları anlaşılmaz.	**1**	**2**	**3**	**4**
19. Yaşıtlarının arkadaşça ya da sıradan (nötr) yaklaşımlarına olumsuz karşılık verir (örneğin, kızgın bir ses tonuyla konuşabilir ya da ürkek davranabilir).	**1**	**2**	**3**	**4**
20. Düşünmeden, ani tepkiler verir.	**1**	**2**	**3**	**4**
21. Kendini başkalarının yerine koyarak onların duygularını anlar; başkaları üzgün ya da sıkıntılı oldugunda onlara ilgi gösterir.	**1**	**2**	**3**	**4**
22. Başkalarını rahatsız edecek veya etrafa zarar verebilecek kadar aşırı enerjik, hareketli davranır.	**1**	**2**	**3**	**4**
23. Yaşıtları ona saldırgan davranır ya da zorla				

işine karışırsa, bu durumlarda hissedebileceği olumsuz duygularını (kızgınlık, korku, öfke, sıkıntı) uygun bir şekilde gösterir.	**1**	**2**	**3**	**4**
24. Oyuna başkalarını katmaya çalışırken olumsuz duygular gösterir (örneğin, aşırı heyecan, kızgınlık,üzüntü).	**1**	**2**	**3**	**4**

APPENDIX J: VERY SHORT FORM OF CHILDREN BEHAVIOR QUESTIONNAIRE (TURKISH VERSION)

ÇOCUK DAVRANIŞLARI ANKETİ

Son **6 ayı** göz önünde bulundurarak, çocuğunuzun aşağıda tarif edilen bazı durumlar karşısında nasıl davrandığını en iyi ifade eden şıkkı yuvarlak içine alarak belirtiniz.

	Tamamen yanlış	Oldukça yanlış	Biraz yanlış	Ne doğru Ne yanlış	Biraz doğru	Oldukça doğru	Tamamen doğru
1. Bir yerden başka bir yere giderken her zaman çok aceleci ve telaşlıdır.	1	2	3	4	5	6	7
2. Yapmak istediği bir şeyden alıkonulduğunda hayal kırıklığı yaşar.	1	2	3	4	5	6	7
3. Resim yaparken ya da kit boyarken çok iyi yoğunlaşır	1	2	3	4	5	6	7
4. Yüksek kaydıraklar kaym gibi maceralı etkinlikleden hoşlanır.	1	2	3	4	5	6	7
5. Ufak bir kesik ya da yaralanmada bir hayli üzülür.	1	2	3	4	5	6	7
6. Gezmeye gitmeden önce ihtiyaçlarını hazırlar.	1	2	3	4	5	6	7
7. Sıklıkla yeni ortamlara at	1	2	3	4	5	6	7
8. Ailesinin planları yolunda gitmezse üzülür.	1	2	3	4	5	6	7
9. Kendisine şarkı söylenilm sever.	1	2	3	4	5	6	7
10. Hemen hemen herkesin yanında rahattır..	1	2	3	4	5	6	7
11. Hırsız veya "öcü"lerden korkar.	1	2	3	4	5	6	7
12. Ebeveynleri yeni kıyafet giydiklerinde farkına varır.	1	2	3	4	5	6	7
13. Hareketli oyunlara kıyasla sakin etkinlikleri tercih eder.	1	2	3	4	5	6	7

14. Bir şeye sinirlendiğinde en az 10 dakika kızgın olur.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
15. Bir şey oluştururken ve şeyleri bir araya getirirken yaptığı işe odaklanır ve uzun süre ilgil	**1**	**2**	**3**	**4**	**5**	**6**	**7**
16. Salıncakta sallanırken yükseğe çıkmayı ve hızı sever.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
17. Bazı görevleri başaramadığında üzülür.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
18. Yönergeleri* takip et iyidir. *Yönerge: Dur!, Geri gön!, dön! vs. gibi…	**1**	**2**	**3**	**4**	**5**	**6**	**7**
19. Yeni durumlara alışmas uzun zaman alır.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
20. Soğuk algınlığında çok zor şikayet eder.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
21. Tekerlemelerde olduğu gibi ahenkli sesleri sever.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
22. Uzun zamandır tanıdığı insanlar arasında bile bazen çekingendir.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
23. Kızdığında sakinleştirilmesi çok zordur.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
24. Oturma odasındaki bazı yeni nesneleri hemen farkeder.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
25. Akşamları bile enerji doludur.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
26. Karanlıktan korkmaz.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
27. Bazen resimli kitaplara dalıp gider ve uzun süre onlara bakar.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
28. Kaba ve gürültülü oyunları sevmez.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
29. Küçük kesik ve yaralara çok üzülmez.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
30. Tehlikeli olduğu söylenen yerlere yavaş ve dikkatlice yaklaşır.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
31. Ne yapacağına karar verirken yavaştır ve acele	**1**	**2**	**3**	**4**	**5**	**6**	**7**

etmez.							
32. Oynamak istediği şeyi bulamazsa kızar.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
33. Sallanmak gibi sakin ritmik etkinliklerden hoşlanır.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
34. Bazen yeni girdiği ortamlardan utangaççа ayrılır.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
35. Ziyarete gelen sevdiği akrabalarının veya arkadaşlarının gitmeye hazırlanmaları, onu mutsuz eder.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
36. Ebeveyni dış görünümünü değiştirdiğinde, yorum getirir.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

APPENDIX K: LINGUISTIC EXPRESSIONS UTTERED BY CHILDREN FOR DIFFERENT TYPES OF PROTESTS

	Original (Turkish) versions	…can be roughly translated to English as…
Referring to the Rule Source	Öğretmen öyle dedi.	The teacher sad so.
	Öğretmenle öyle oynadık.	We played with the teacher in this way.
	Ben öyle öğrendim.	I learned in this way.
	Öyle demedi.	She did not sad so.
	Köpekleri buraya dizdi öğretmen.	The teacher put the dogs here.
	Böyle öğretti.	She taught this way.
	Ama biz öyle öğrendik.	But we learned in this way.
Clear Normative Protest	Maviler oraya konmaz.	Blue ones are not put there.
	Maviler oraya, kırmızılar buraya.	Blue ones there, red ones here.
	Bu şekilde oynanmaz.	It is not played in this way.
	Yanlış yapıyorsun.	You are doing it wrong.
	Köpekler oraya değil.	Dogs are not there.
	Mavileri karıştırıyorsun.	You are mixing the blue ones.
	Sen oyunu bilmiyorsun.	You do not know this game.
	Onu buraya koymalısın.	You should put it there.
	Şuraya.	There.
	Ben sana göstereyim.	Let me show you.
	Dur, sana öğreteyim.	Let me teach you.
	Bu buraya, tamam mı?	This one goes there, ok?
	Öyle olmuyor.	It does not work that way.
	Bu yuvarlağı yanlış atmışsın.	You throw this red one wrongly.
	Oraya değil bu.	It does not go there.

	Sen bu oyunun kuralını bilmiyorsun.	You do not know the rule of this game.
Imperative Protest	Kırmızıları buraya at.	Throw the red ones here.
	Mavileri buraya koy.	Put the blue ones here.
	Al.	Take.
	At.	Throw.
	Kırmızıları oraya koyma.	Don't put red ones there.
	Yapma.	Don't do it.
	Bozma.	Don't spoil it.
	Ama böyle olur mu?	But, does it work that way?
	Niye bozuyorsun?	Why are you spoiling it?
	Kırmızılar oraya konur mu?	Are the red ones put there?
	Şunu yerine koy.	Put it its place.
	Onlar buradaydı, *di mi*?	They were here, weren't they?
Declarative Protest	Yeşiller bende, sarılar sende.	Green ones are mine, yellow ones are yours.
	Ben böyle yapıcam.	I do it in this way.
	Ben öyle yapmıcam.	I don't do it in this way.
	Köpek bende.	Dogs are mine.
Simple Opposition	Hayır.	No.
	Yaaa…	Yaa…
	ı-ıı.	I-ıı…
	O köpek.	This is dog.
	Ama kuş.	But bird…

TEZ FOTOKOPİ İZİN FORMU

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YAZARIN

Soyadı : .....
Adı : .....
Bölümü : .....

TEZİN ADI (İngilizce) : .....
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TEZİN TÜRÜ : Yüksek Lisans ☐ Doktora ☐

1. Tezimin tamamı dünya çapında erişime açılsın ve kaynak gösterilmek şartıyla tezimin bir kısmı veya tamamının fotokopisi alınsın. ☐
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Yazarın imzası ..... Tarih .....